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ABSTRACT

The John and Mary R. Markle Foundation, chartered in 1927 to promote the advancement and diffusion of knowledge and the general good of mankind, currently conducts a program to strengthen educational use of the mass media and communications technology. The foundation's annual report begins with the president's essay on the history, philosophy, and the potential of communications technology in education. There follows a review of the foundation's current programs which include grants in the areas of television for special interest audiences, public interest and communications, social science research, journalism, and various related educational programs. Publications growing out of these programs are listed. The third section is a summary of activities and publications of each of the foundation's scholars in academic medicine, a program which has just completed its final year. The final section is the treasurer's report, which includes financial statements and a list of grantees. (Author/LS)

THE JOHN & MARY R. MARKLE FOUNDATION ANNUAL REPORT 1973/74

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The John & Mary R. Markle Foundation was chartered in 1927 "to promote the advancement and diffusion of knowledge and...the general good of mankind." The founder, John Markle, was born in 1858. The son of an anthracite operator, he grew up in Hazleton, Pennsylvania, and graduated from Lafayette College in 1880 with a degree in mining engineering. The following fall, at the age of twenty-one, he was put in charge of the firm his father had founded, George B. Markle & Company. He had a long and successful career as head of one of the largest independent anthracite operations in the country and became nationally known as the builder of the five-mile Jeddo drainage tunnel that reclaimed mines inundated by the 1886 floods.

In 1902 Mr. Markle and his wife, the former Mary E. Robinson, moved to New York City where he devoted himself to his financial interests and to philanthropy. He established the Foundation with an initial endowment of $3 million which was later increased to approximately $15 million by the terms of his will.

Until Mr. Markle's death in 1933 and for a short time after, the Foundation made grants for social welfare. From 1935 to 1947, emphasis was on grants for medical research and between 1947-1969 the major program was one of awards to Scholars in Academic Medicine. The goal of the current program is to strengthen educational uses of the mass media and communications technology. Appropriations total approximately $2 million a year.

Printed annual reports covering the Foundation's activities have been issued since 1936. Those of recent years are available on request.

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THE PRESIDENT'S ESSAY

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COMMUNICATIONS TECHNOLOGY AND EDUCATION[1]

The acceptance and use of mass communications in daily life and their lack of acceptance and use within education is a paradox of our times. For most Americans the technologies of mass communications have become necessities as well as luxuries. For example, the explosive growth and spread of television in the U.S.A. since World War II is well known. Today over 95% of American households in all regions of the country and of all income levels own at least one television set.

Although television has received the most attention as a medium of mass communications, the other media have also grown. Radio, once thought to be doomed by television, has developed new formats for music, news and talk programs. Radio now serves many extremely loyal audiences. The number of radio stations serving the country has more than doubled since 1950—going from 2,800 to over 7,000, while the number of radios in use has grown even faster—from about 100 million in 1950 to over 370 million.

Motion pictures, once thought to be doomed by television, have become a mainstay of the television diet. Moreover, they are doing well in many motion picture theaters. In addition to this, films have become an art form for every man thanks to the availability of relatively inexpensive hand-held cameras, some now with built-in sound. The rise in high school and college courses for filmmaking has been spectacular. The recording industry has also prospered. Vast numbers of records are manufactured and distributed—popular and classical music, poetry and drama. Video cassettes for use on home television sets—only recently available at competitive prices—make the home set even more versatile.

Although it is not often thought of as such, the computer has also become part of the communications technology surrounding us. The techniques by which we can communicate effectively with computers have steadily been improved to the point where there are now computer languages for many purposes. Some of these computer languages can be learned easily by elementary school students. As techniques of timesharing are making it possible for many people to use the computer at one time, the computer is becoming a medium of mass communications.

Newer technologies are still being developed. Cable antenna television is now installed in more than 10% of American homes, and satellite communication for television and other purposes is rapidly coming. Apparently there is no end to the development and proliferation of mass communication technologies for recreation and for business.

Although these same technologies have been widely heralded as having great educational potential, they have made comparatively little impact within education. The computer provides a typical example of what has happened. However, this example could be almost duplicated by case studies of the use of radio, television or video cassettes within education. During the 1950's and 1960's when the computer was being developed as a great tool for the sciences and business, many thought it also held great promise for education. There was also widespread initial enthusiasm among teachers and administrators at all educational levels. Computer manufacturers suggested that

[1]Based on part in Morrisett, Lloyd N., "Technology, Humanism and Higher Education," in Increasing Productivity in Higher Education, Educational Testing Service, 1974.

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the computer would have broad application within education, and a few early practical uses were planned. Unfortunately these were frequently underfinanced and inadequately planned. Subsequently it was realized that the computer did not fit conveniently within the typical school system. Computers were considered difficult to use; they were expensive; they were hard to maintain properly. After the initial enthusiasm many educational administrators became disillusioned. The few successful uses of communications technology within education are unfortunately not the rule. One must conclude that the new communications technologies have had relatively little impact thus far.

Some evidence continues to suggest that communications technologies may have an important future role within education. The triumphs of electronic technology outside formal education are constant reminders to educators of a seemingly limitless potential. A few successful, though limited and isolated, uses within education show that practical results are possible. A new way of looking at communications technologies and education may help resolve the present paradox of acceptance in daily life and apparent rejection within education.

THE TECHNOLOGY OF EDUCATION

The debate about greater use of modern communications technologies within education often misses the point. On the one side are those who insist in the name of efficiency and science that educators should make greater use of modern communications technologies. The other side replies that they have tried without much success. The issue can, however, be put quite differently. Education today can be viewed as being based on a single technology—that of print. The question then becomes whether or not new technologies should be added to or integrated with the present print technology of education. If the issue is seen as

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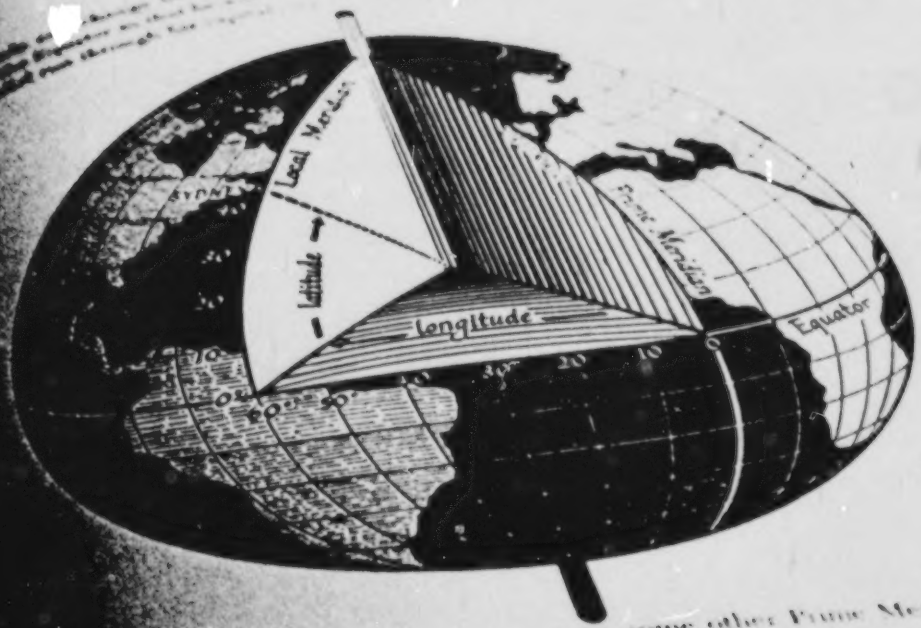

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...Meridian is. It can be any- ...
...power has a mind to put it ...
...pass through Madrid. And ...
...sailed westward they reck- ...
...from the Madrid meridian ...
...them they wanted to know ...
...from home, and that was ...

...Meridian used by Americans ...
...through Greenwich, England ...

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the integration and addition of new technologies to a traditional technology, rather than adopting something new in place of the traditional, different questions can then be examined.

Before looking at these issues it is necessary to have a very clear understanding of what is meant by "technology." The definition given by Harvey Brooks, Dean of Engineering and Applied Science at Harvard, is instructive: "...technology is essentially a specifiable and reproducible way of doing things. It is not hardware but knowledge, including the knowledge not only of how to fabricate hardware to predetermined specifications and functions, but also of how to design administrative processes and organizations to carry out specified functions and to influence human behavior toward specified ends. The key element in all technology is the capacity to specify how to do something in a publicly communicable and reproducible way. The term, 'technology,' does not specify the whole domain of human action but only that part which can be communicated and specified in a replicable way. Thus it excludes many human skills and arts which at least at the present time cannot be codified but must be learned from experience and by doing."[1]

When this definition is applied to education we find that education has a very highly developed technology. It is based on print combined with lectures and discussions. The textbook, teacher's manual, or other form of printed material is at the heart of this technology. A part of this technology is the publishing industry with its editors, publishers, salesmen and administrative organizations necessary to procure, manufacture and distribute books. The authors who supply materials for educational publishing are also a part of the technology, as are the teachers who use the material.

[1] Brooks, Harvey, "The Technology of Zero Growth" in Daedalus, Fall 1973, "The No-Growth Society," p. 139.

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At the college level, the campus bookstore and the library are another part of this technology of print—making available texts and reading material to students and professors alike. At the elementary and secondary school level there are similar ways of getting textbooks in the hands of the students who need them. It is not the purpose here to analyze systematically the technology of print as it spreads across the entire educational system. It is only necessary to see that if technology is considered as knowledge in Harvey Brooks' definition, then all formal schooling is, practically speaking, organized around the technology of print. The school, the library, the bookstore, the publisher, are all complementary and reinforcing structures within this technology. It is highly developed and the various parts of it reinforce each other as well as serving the whole.

This technology is certainly not new. Until the invention of the printing press in the fifteenth century, instruction was verbal. Once printed materials could be acquired, the tradition of verbal instruction began to incorporate the newer print technology. In the succeeding four hundred years this evolution has led to a highly sophisticated and developed technology in which verbal instruction is closely allied with and dependent upon print technology.

When technology is considered as the knowledge that leads to a specifiable and reproducible way of doing things, it can readily be seen that technology is vital to education. Without a technology, education would be entirely a hit or miss affair. There would be no way of training teachers to do their tasks. Rather, each teacher would have to approach his job afresh without the benefit of the experience of those who have gone before him. He would not be supported in his task by a publishing industry or a teacher-education industry. Not only would this be extremely difficult from the teacher's point of view, it would be impossible from the point of view of society. Society is intent upon seeing that there is a certain degree of uniformity in the education of young people. This implies a technology which allows education to proceed in a reproducible manner.

Understanding that education is based on a highly developed and sophisticated technology, we can begin to ask what are some of the inherent advantages and limitations of the present technology. This approach lets one explore the possible advantages and limitations of new technologies that might be integrated with the present technology of education. If the present technology is adequate for the full range of educational objectives and is at least as inexpensive as any other technology, then there would be little reason to change. If, however, it is found that the present technology of education is not fully adequate or is not as efficient as it might be, then there would be reason to explore carefully the advantage of adding new technologies to the present system.

THE DOMAIN OF EDUCATION

According to Lawrence Cremin's definition, the concept of education is broad. He defines it as ". . . deliberate, systematic and sustained effort to transmit, evoke or acquire knowledge, attitudes, values, skills, and sensibilities."[1] All institutions of education aspire to accomplish at least part of what Cremin calls education, but they vary greatly in the direction of their aim and their ability to achieve it. For example, casual examination of college catalogs shows wide differences in emphasis on knowledge, attitudes, values, skills and sensibilities. The research of the past fifteen years on institutions of higher education bears out these

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[1] Cremin, Lawrence A., American Education: The Colonial Experience–1607-1783. New York: Harper and Row, 1970, p. xiii.

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differences although not always confirming what the college catalogs say.

For the most part, the residential liberal arts college takes the transmission of attitudes, values and sensibilities as a more serious part of its effort than does or can the commuter college or the correspondence school. Two-year vocational colleges take the transmission of skills more seriously than the liberal arts institutions. Colleges with religious orientations and traditions often place more emphasis on attitudes and values than do their secular counterparts. These differences among colleges are mirrored in the differences among elementary and secondary schools.

Of far greater importance than these differences among institutions of education is the fact that all of them utilize a single common technology and, as a result, base their approach to learning on a verbal model. The medieval teacher talking to his students has become the modern professor or teacher lecturing to his class and assigning readings. The teacher presents a verbal codification and abstraction of experience to his students. Even though we might agree that experience is the best teacher—allowing learning and understanding in unequaled breadth, depth and richness—it is impossible, impractical and inefficient to try to have students fully experience history, economics, mathematics, social studies, science and the other subjects of education. We, of necessity, codify experience in verbal form for its transmission to students. In the process of verbal codification some things are more fully captured than others. The verbal codification of experience deals more easily with knowledge defined as information than with values, attitudes and sensibilities. Words can transmit knowledge about values, attitudes and sensibilities but the values, attitudes and sensibilities themselves are something apart from and different from knowledge about them. The

philosopher, D.T. Suzuki, said, "The intellect is after all the spectator and when it does some work it is a hireling for better or worse."[1] Choosing a verbal model for the transmission of knowledge has meant some inherent loss in the capacity to transmit other human qualities. The ideal of the liberally educated person has never been simply that of the knowledge machine but rather a person who combines knowledge with values, attitudes, skills and sensibilities and is able to employ his intellect in the service of his own and others' humanity.

The technology of print and lecture is highly efficient in the transmission of knowledge. As we have seen, it is also a technology that is extensive and sophisticated in its development and extremely familiar to all involved in the educational process. This very familiarity tends to blind us to some of its limitations. The verbal tradition of education is like the air we breathe. We don't notice it unless we catch a cold or the pollution level becomes so high that our attention is directed in detail to the air and our breathing apparatus.

Each of the new technologies of communications is very likely to have its own set of characteristics and these will be different in some degree from the characteristics of the technology of lecture and print. Just as there is some possibility of loss when a lecture is translated into print, there would be the possibility of other losses if lectures or texts were simply translated into television, radio, or other terms. The textbook transmits knowledge more efficiently than the teacher, but textbooks are notoriously dry, and dull, and ineffective in transmitting skills and sensibilities. The lecture broadcast by radio or recorded on a cassette omits the visual image of the teacher and along with it some of the ability to transmit nonverbal aspects of experience. The television broadcast captures the visual image of the teacher but does not allow the interaction, both verbally and nonverbally, between the good teacher and his students. The computer can interact to a degree with the student, but it cannot deal with an individual's emotions.

Relatively few people argue that radio or television or film should be used simply to record the teacher or the textbook though these simple and direct applications of technology have been made—occasionally quite successfully. Sitting in front of a television set at a convenient time to watch a good lecturer can be a more satisfactory experience than sitting in the back row of a large lecture hall listening to the same lecturer in person at eight o'clock in the morning. The highly motivated student who needs to review a critical demonstration that he has missed may be more than glad to listen to a recorded version of the demonstration available in the library. Factors of motivation, convenience and necessity may all contribute to make the student resigned or, indeed, pleased to have the opportunity for learning in this way through technology rather than through the direct experience of his instructor.

THE POTENTIAL OF NEW TECHNOLOGY

The new technologies of communication can, however, be more than this. These technologies allow one to record, edit, and mix sources. They can thus add very substantially to what the instructor does in the classroom or what is put into a textbook. These additions to the instructional process can possibly combat some of the ineffectiveness of words in transmitting skills, attitudes, values and sensibilities. Where words alone convey only poorly the excitement, fear and sudden rush of the stomach into the throat from a ride on a roller coaster, a super-wide screen and associated sound effects can do it very well. A text of John Kennedy's inaugu-

[1]Suzuki, D.T., Essay on Zen Buddhism, London: Luzuk and Co., 1927 in Karen Horney, Neurosis and Human Growth, New York: W.W. Norton, 1950, p. 183.

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ral speech conveys little of the drama and impact of the occasion. When this history is presented through a recording or a televised presentation, understanding and experience are greatly enriched. In a recent issue of the Yale Alumni Magazine Michael Lesy discussed his work in joining photographs with words. He wrote, "Pictures are just a level of data which to me is awesome—and which has a completeness which astounds me. But they are still incomplete. I mean I can show you a photograph of the World War II surrender on board the Missouri, but unless I can lay on you the diplomatic cables that were involved, you still won't understand it. The whole thing is arrangement—the whole thing is the choice of those details which put together will call up the smell, the sunlight, the sound, the thought, the predictions, the whole shebang...."[1]

Although we are aware that each of the new technologies is likely to have its own characteristics and we can understand vaguely what these characteristics may be, we have very little real knowledge of the details and what they imply for education. Most research on the use of television or radio or computers in education has not been very analytic. It is not very helpful, for instance, to study whether or not a television lecture will be as effective as a lecture given in person. We will never begin to realize the potentials of the new technologies if we look only at their present applications within the field of education. In addition we must look at how these technologies have been developed in their most advanced uses. For example, the potential of computers and their unique characteristics are best understood by those who have a thorough knowledge of their scientific applications. The characteristics of television are best understood by those who are thoroughly familiar with the creative application of television in its entertainment and news forms. These applications of technology outside the field of education are not in themselves sufficient to determine how the technologies might be applied within education. Commercial television or the scientific applications of computers are, however, indicative of some of the inherent characteristics of television and computers. Moreover, commercial television and the computer as used in the sciences show us these technologies at their most sophisticated level of development.

The children's television program "Sesame Street" is one example of an attempt to adapt the entertainment form of commercial television to educational purpose. Gerald Lesser has recorded the history of "Sesame Street" and some of the research on it in Lessons from Sesame Street.[2] In doing so he has catalogued some of the characteristics of television that might be applied to education and how these characteristics might be used. As a beginning, Lesser points out that all communications media have their own conventions. Books have their conventions. They are written in sentences that in the Western world read from left to right and from the top of the page to the bottom. The sentences are combined in paragraphs and the paragraphs in chapters usually indicating convenient places for the reader to pause without losing the development of a thought. The conventions of print operate to organize the material for the reader and allow the reader to anticipate certain regularities. The same is true with the conventions of television.

Some television conventions are extremely commonplace as, for example, loud music or music in a minor key, dramatic pauses, the camera zooming in, or the motion stopping at a given point. The producers of "Sesame Street"

[1] Lesy, Michael, "The Mystery of Time Past," Yale Alumni Magazine, April 1974, p. 15.

[2] Lesser, Gerald S., Children and Television: Lessons from Sesame Street, Random House, 1974.

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have shown that these and other television conventions can be used as cues for learning. Words appearing above a character's head can indicate that the character is thinking and working on solving a problem. The full range of television conventions is yet to be explored. We do not know how to use zoom-in techniques as effective learning devices. Can slow motion be used effectively to help the learner more systematically analyze an event? Can the showing of two things simultaneously on the split screen of television begin to teach the individual to develop a comparative mode of thought?

When production techniques are added to camera techniques Lesser shows that television presents an imposing range of areas to explore for their potential to stimulate learning. One very important way that children and adults learn is simply by watching other people and imitating their behavior. The producers of "Sesame Street" have found that models of physical behavior, facial expressions, verbal communication, and social attitudes can all be used successfully on television to encourage similar behavior by children. A carefully chosen example of cooperative action between two children is more likely to produce similar behavior in the child viewer than any amount of talk about the importance of cooperation. Television can also be used to focus on the relevant aspects of something to be learned. When an unfamiliar subject is approached, we all have great difficulty in discriminating between the relevant and the irrelevant. As learning proceeds we gain in the ability to pick out the important. Television can aid in the process by focusing on the important things early in the learning process. The list of television techniques that can be brought to bear on learning also includes: using sight and sound to reinforce learning; proceeding from the familiar to the unfamiliar; showing events taking place in the real world; using repetition with or without variation to the extent the learner needs it; using surprise and humor; using animated effects to exaggerate, caricature, or emphasize; using music to catch attention or aid memory. Over thirty different uses of music have been part of "Sesame Street." They include "frustration" music and "detection" music, as well as "jungle" music.

A great deal more research is needed in the creative use of new communications technologies for education. Despite the advances in understanding in the use of television for young children made by "Sesame Street," the producers of that program would be the first to state that they are only beginning to understand how television can be used effectively in the education of young children. In another ten or twenty years we should be able to look back on "Sesame Street" as a relatively crude beginning in the effective use of television for teaching young children.

EXPLORING THE EDUCATIONAL POTENTIAL OF TECHNOLOGY

If we are to understand the full potential of new technologies as well as their limitations, we must have specific plans for exploring these potentials. Today far too many attempts to introduce new technology in education simply involve using the new technology to do what is already being done by a teacher or by textbooks. Projects involving new technologies should have two purposes—the full exploitation of the technology chosen and the production of beneficial educational results. For example, television might be used to teach methods of improved health care to young adults, or to teach the adult and aging population about the problems of retirement and aging. The power of computers to teach medical diagnosis might be explored. Film offers exciting opportunities for teaching junior high school history. Each combination of content, specific audience, and technology suggests its own set of problems in the adoption of that technology for education.

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In each of these examples it would be necessary to bring several groups of people together in order to carry out the work creatively and effectively. Obviously it would be important to include experts in the subject to be taught. The contributions of academic experts and teachers practically involved with the subject are vital. They would need to be joined by experts in the technology to be used. It would be best to include people who are currently making the most creative and sophisticated uses of the technology. This would mean in television, for example, calling on producers of entertainment shows, animators, and documentarians as well as those who produce the commercials. Researchers are also necessary if we are fully to understand what happens as a new technological approach to education is developed. When producers and content experts first get together to produce a new program, they naturally rely on experience and intuition in determining what to do and how to use the technology. Research can give feedback to the experts as they proceed and therefore lead to improved judgment. Without this research component, new projects in technology remain creative endeavors and add little to systematic understanding of how technology can best be used.

This plan to bring together content experts, technology experts, and the appropriate researchers is very difficult to achieve successfully. All three groups of people come from quite different traditions. Content experts ordinarily feel that they already know how to teach the subject involved. They are the ones who have studied the subject and who have been practically involved in teaching it. People in research believe that they can best approach the design of a new curriculum project for they understand the research techniques needed to provide the evidence on which to proceed. Similarly, technological experts look with skepticism on the involvement of content experts and researchers for, after all, people who are familiar with the technology best understand how to use the potential of that technology to accomplish the job. Uniting these three groups of people in a productive project will not be easy. It will take time for the participants to learn to talk and understand each other. However, as the different groups do learn to work together, decisions about how to proceed should be made more easily. In addition to time, investment and commitment are essential. The period necessary for bringing together groups of people from different traditions and backgrounds is to be measured in years rather than months or weeks and the cost in hundreds of thousands of dollars. It cannot be expected that the job will be accomplished without strain and difficulty.

FACTORS LIMITING THE USE OF NEW TECHNOLOGY

Several factors have limited the integration and use of the new electronics communications technology in education. The first of these is the combination of inertia and the resistance of vested interests to the introduction of new techniques. As we have seen, formal education from kindergarten through graduate school is now based primarily on the single technology of print and lecture. This technology is built into the structure of education. The main conventional argument for the use of new technologies has been that they can take over and do better some of the job of the present educational system, but little convincing evidence has been produced. It is also suggested that the use of new communications technology will lower the cost of education. Again, little evidence has been produced to support this claim. Without evidence there is little reason to expect that these arguments will lead to changes.

It is possible, however, that some reassessment of the nature of education will indicate that new technologies have a vital place. The present system of education concentrates very

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heavily on the transfer of information. Only limited attempts are made to deal with other areas of education, such as the development of values, skills, sensibilities and attitudes. If education is to make a serious attempt to accomplish its goals, it must make not only the best use of teachers but also the best use of modern technology. Bringing images, sight and sound into the classroom will help teachers approximate experience and remove some of the abstraction and unreality that can pervade the schoolroom. Teachers and technology in combination can better expose students to the wide range of stimuli necessary to fully develop skills, attitudes, sensibilities and values, as well as knowledge.

It is often suggested that a greater use of new technology will mean a substantial loss in educational quality. Behind this claim is the idea that technology is a dehumanizing agent in education and that its widespread use will increase the alienation that is already too prevalent between students and teachers. It must be recognized that to some extent the use of any technology in education is dehumanizing. The codification and abstraction of experience in some form of technology is absolutely necessary for a system of education, but its use is a substitution for direct experience. As a result some of the human qualities of experience are likely to be diminished.

The relatively efficient transmission of knowledge is gained at the cost of reducing capacity for the transmission of other human qualities. The best teachers, by their manner and example, are able to transmit or evoke those qualities of education that tend to be lost in mere words. This ability is precisely one of the things that sets apart the master teacher—the person who is a bit of a poet, a performer, an actor, a mimic—from the person who is unable to add very much to the words he uses in his teaching. The argument made here is that different qualities are lost in different technologies and that by using the full panoply of technology, rather than limiting education to one or a few, less will be lost. It is up to the schools to make the best use of all available technologies in order to educate insofar as possible across the full domain of information, attitudes, skills, sensibilities and values.

A closely related reason for the failure to make greater use of new communications technologies in education is a strong tendency to accept present standards of performance as well as the limitations of present procedures. We must see if present standards can be raised and present limitations overcome. It must be admitted that we know relatively little about what is lost in the verbal transmission of information and how these losses can be overcome. More attention should be paid to the inherent limitations of verbal education. As this area is studied and clarified, we will be able to remedy deficiencies.

Very practically, one problem in using the new communications technology is that it may not be appropriately designed for educational use. Since the current educational market for new communications technology is relatively small, little attention has been given to designing hardware and software for the educational market. A simple example would be the use of television in the classroom. The normal television set is designed for home use. It is to be viewed by one or at most five or six people who sit close by. In the ordinary classroom there may be twenty or more students. The home television set is not appropriate for classroom viewing. The deficiency is often made up by the use of several television sets in the same classroom. This, too, is not the optimal viewing situation. If the television signal were amplified and projected onto a large screen, it could be viewed simultaneously and conveniently by many people. There are some of these television projection systems in use, but they are new and have not been developed to the point where they offer reliable and high quality pictures.

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Not only is it necessary to design communications technology specifically for educational use, but it is also important to achieve high standards of quality. Communications technology used in the classroom must be extremely reliable and of high quality so that its use facilitates and does not interfere in the educational process. The breakdown of a projector or a television set in the classroom can destroy an otherwise well prepared hour or day of instruction. Just as there are military grade specifications for technology that are higher and produce greater reliability than similar specifications in the civilian sector, so educational grade specifications are needed for new communications technology if it is to receive wide acceptance in the educational system. Given our widely dispersed and autonomous educational units at every educational level, this is an area in which the federal government could play a vital role. The federal government might well stimulate the necessary research and development into the production of appropriate educational technology and set performance specifications.

MARSHALLING THE RESOURCES

All the foregoing arguments imply that the effective use of new communications technologies in education will require substantial investments in its development and in the exploration of its potential. These heavy investments will come in money, in manpower, and in a time perspective that will allow full exploration of the potential uses and appropriate integration of new technologies with the present technology of print and lecture. Although it has become trite to make comparisons between federal education budgets and expenditures for military defense, the problems are not dissimilar in this case. A time span of five to ten years is often adopted for the development, funding, acquisition and implementation of a new defense system. If new educational technology has the potential that many people think it does, similar time spans and similar investments will be needed. It cannot be expected that cities, school districts, or colleges and universities can cope with the long time periods, make the investments, or do the necessary planning. If new technology is to be used effectively, then it is vital that the federal government take responsibility and plan appropriately. This will mean new mechanisms of federal planning and action as there is little past history of effective federal involvement in this area.

In many ways this seems like an inopportune time to discuss the use of new communications technologies in education. Educational budgets are under severe strain in times of rising costs, inflation, and resistance to increased taxation. The greater use of new communications technologies will inevitably mean new costs, and these are not easily assumed in times of budgetary stringency. Particularly, they are not easily assumed when there is little to suggest that the new technologies will be helpful. We have also entered the time of teacher surpluses, so there is not the same pressure to increase educational output through the use of technology that existed only a few years ago. Now many teachers fear job loss. The proposition that the new technologies will make education more efficient is seen as a threat to their position. It has been argued here that while new technology may improve efficiency in education, its more important use is to allow education to proceed more effectively across its full range of goals.

Our society is committed to education as a way of life. This commitment makes it of fundamental importance to examine carefully whatever promises increased quality or efficiency in education. So far the new communications technology has promise, but the promise has not been fulfilled. In our own interests and the interests of those who are to be educated in the future, this potential deserves the most careful investigation.

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REVIEW OF PROGRAM IN MASS COMMUNICATIONS

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INTRODUCTION

PROGRAM DIRECTIONS

The purpose of the Foundation's program is to strengthen the educational effects of the media and communications technology. It is clear that the media are playing an important role in today's society by providing information, shaping attitudes and opinions, and influencing our views of ourselves and the world. It is also apparent that many people feel the media could, and should, render better service.

In its effort to improve the mass media, the Foundation supports programs that enrich the quality of journalism and television as well as programs of research on the effects of the mass media. The Foundation also funds projects on public policy issues. Other questions also need to be addressed. The Foundation has a general interest in all aspects of the media and plans to support a wide range of efforts to improve mass communications.

PROPOSALS

The Foundation does not have an application form for submitting a proposal. An informal letter outlining a project will permit an early judgment about the possibility of support. The following information should be included in this initial inquiry: the purpose for which aid is sought, resources needed, personnel involved, and a description of methods to be used in completing the project.

1973-74 APPROPRIATIONS

During the fiscal year July 1, 1973 through June 30, 1974, the members and directors of the Markle Foundation appropriated $2,055,997 for the program in mass communications. Grants of $15,000 and over are described in this section. All grants are listed in the Appropriations section.

TELEVISION FOR SPECIAL INTEREST AUDIENCES

Understanding the particular programming needs of audiences with special interests and then finding ways to communicate to these audiences has been a major focus of the Markle Foundation throughout the five years it has been active in mass communications. Since much of commercial television is geared toward general audiences, it is important that special interests—whether in art or in oceanography—be served and that specific groups such as children and non-English speaking audiences also be reached.

Last year, Markle Foundation President Lloyd N. Morrisett suggested that by attempting to identify sizable special interest audiences, public television viewership on the whole could be increased. This role for public television was spelled out by Mr. Morrisett in the President's Essay, *Rx for Public Television,* which appeared in the 1972/73 Markle Foundation Annual Report. The Foundation has made a grant to The Rand Corporation in support of this concept. Rand researchers are beginning their study by trying to identify some of the more obvious special interest audiences. They will then try to determine the scope of the public television audiences that may have these special interests. Two other similar but smaller studies are also being conducted with Foundation funds. The Political Science Department at the Massachusetts Institute of Technology is developing an inventory of questions typically used by researchers who have studied a variety of public interests. Also EDUCOM (Interuniversity Communications Council, Inc.) at Princeton is using its grant to bring together a group of people who are in a position to discuss some of the methods that

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might aid in the definition of special interest audiences as seen from the viewpoint of programming for public broadcasting.

The Foundation also has funded other projects designed to serve either special interests or particular groups of viewers. A grant to Lincoln Center for the Performing Arts, Inc. is financing an investigation of the feasibility of transmitting live Lincoln Center performances via pay television. Another, to the Cable Arts Foundation, Inc., is helping to finance the development of local arts programming for cable television. The Claremont Graduate School received funds for a project designed to increase the effectiveness of a Spanish-language television station in Los Angeles. The Educational Broadcasting Corporation has also received funds for a study of the viewing habits, awareness of and attitudes toward public television in the Spanish-speaking community of New York City. Another Foundation effort in this area focuses on the hospital patient. Details of the major grants are described below.

THE RAND CORPORATION

The one-year grant of $35,000 made to The Rand Corporation is a direct result of Mr. Morrisett's essay which appeared in last year's Annual Report. In order to define special interest audiences and then to serve them, some basic data is essential. Under its Communications Policy Program, Rand is researching a number of problems involved in defining special interest audiences. A second aspect of the Rand work is to estimate the size of these special interest audiences once they have been identified.

To define special audience interests, Rand is using such existing information as the circulation of specialized publications, for instance, *Opera News* and *Auto Racing Digest*. Attendance at certain public events as well as equipment sales to the golfer, the cellist or the sculptor, for example, will also furnish basic data on the nature of special audiences. Mailing lists and memberships in organizations are other indications of specialized audience interests. By assessing the level of consumer activity in a variety of specialized areas, the researchers hope to obtain an indication of the geographic and demographic distribution of these special interest audiences as well as the size of the varying audiences.

The results of this research should provide basic data necessary for developing special interest audiences for public television.

LINCOLN CENTER FOR THE PERFORMING ARTS, INC.

While Lincoln Center's cultural events now reach those who are within commuting distance of the New York metropolitan area and able to afford tickets, the directors of Lincoln Center would like to have live performances transmitted via pay television to homes throughout the nation. If pay television can be used to transmit cultural events, not only will those currently unable to see live performances benefit, Lincoln Center will also generate an additional source of income. With the help of a grant from the Sloan Foundation, the Media Development Department of Lincoln Center has evolved the technology necessary for telecasting live performances from the Center. The next critical step is to explore the various ways of marketing and distributing Lincoln Center's live performances. The Markle Foundation has made a one-year grant to Lincoln Center in the amount of $76,700 for a feasibility study. The purpose of this feasibility study—as well as a possible market test—is to determine whether or not it is economically possible to attract investors to a program which will transmit the Center's performances via pay television all over the country.

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Part of the study focuses on finding the best way to offer these performances to pay subscribers. A second and equally important goal is to examine the nature and extent of consumer demand for live performances via pay television. Finally, the applicability of Federal Communications Commission regulations must also be examined. In this study, Lincoln Center is using the technical expertise of the Electronic Systems Laboratory of Massachusetts Institute of Technology and they, in turn, are working closely with the Washington law firm of Hogan and Hartson on questions of FCC interpretation. Children's Television Workshop Communications, Inc. is also a consultant.

CABLE ARTS FOUNDATION, INC.

The Cable Arts Foundation, Inc., founded in 1973, produces low to moderate cost arts programming for cable television. Through these productions, Cable Arts Foundation hopes to create a national arts network while at the same time encouraging local organizations and cable operators to produce high quality arts programs. Last year the Cable Arts Foundation produced a series of eleven two-hour programs under the title *A for Art*. This series, telecast in New York City, was funded by a grant from the New York State Council on the Arts. *A for Art* used a variety of materials including independently made art films as well as videotapes produced by or for public television.

The success of this series led the Cable Arts Foundation to propose development of nationwide arts programming on cable television using both nationally and locally produced programs. As a first step in this direction, ten cities have been selected to receive a series of ten one-hour programs made from the original New York City series. During the course of the airing of these programs, a meeting will be held of the specific community's technical and artistic leaders. At each meeting, the Cable Arts Foundation staff will present information on the legal, administrative and technical issues of arts programming via cable television so that those attending will be in a position to implement similar arts programming in their own communities.

Cable Arts Foundation believes that this series will prove that professionally executed cable arts programming—offered on a regular basis and at prime time—can attract a large audience as well as meaningful community participation. A one-year grant of $65,213 from the Markle Foundation is providing the funds Cable Arts Foundation needs for this first step in developing a nationwide network.

CLAREMONT GRADUATE SCHOOL

In June, 1971, the Foundation made a grant to the Center for Urban and Regional Studies at Claremont Graduate School for an audience study of the Spanish-language-only television stations (KMEX-TV and KABC-TV) in the Los Angeles area. The results of this study indicated that most of the programs now feature Mexican films. Few programs focus on life in the United States and interviews indicated that an increase in the amount of practical advice and information aired on these stations should significantly alter the size and composition of the audience. Consequently the Foundation made a follow-up grant to find out if Spanish-language-only television stations could play a more useful role in the Spanish-speaking community. The project staff of the Center for Urban and Regional Studies along with the staff of one of the Spanish-language television stations, KMEX-TV (Channel 34), is initiating two new programming efforts: (1) creation of a "hotline" on KMEX-TV to assist viewers with problems in four areas—housing, education, health care, and employment; (2) programming of public service messages in the four subject areas covered by the hotline. The contents of the messages begin with the need

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for practical information as suggested by the 1971 study. In time, however, the calls to the hotline should dictate the subjects to be covered in the public service messages.

After nine months of public service messages the project's staff will survey the KMEX-TV viewers to determine whether the size and composition of the audience has changed. The study should be applicable to other Spanish-language television stations wishing to improve public service while increasing the size of their audience. This project is made possible by an 18-month grant in the amount of $64,777.

ORIENTATION FILM FOR HOSPITAL PATIENTS

Over a year ago the Foundation wondered whether television techniques could be used to orient hospital patients. While television and film have been used to instruct patients about specific diseases and specific procedures, films have rarely been used as a general orientation device. Hospitals have increasingly become large bureaucratic institutions and, in spite of the goodwill of hospital staffs, it is almost impossible to answer all the questions of an entering patient and make him feel at ease. Perhaps audiovisual media can provide helpful information to the patient at a time when he or she can best absorb it, thereby hopefully reducing fear and anxiety, increasing patient knowledge and cooperation and—at the same time—reducing the amount of work necessary for an already overburdened hospital staff.

With the cooperation of New York Hospital, the Foundation is having two films produced for patient orientation and information. The films are directed to patients entering the hospital for surgery. The first film—to be shown in the admitting room—introduces the patient to the hospital routine. The second film—to be shown at the bedside on the day before surgery—provides the general pre-operative and

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post-operative instruction and information that is normally given a patient. Bill Jersey, president of Quest Productions, Inc., is making these films which will be shown at New York Hospital. Both films will be formally evaluated in order to determine the extent to which they help patients. Although New York Hospital is providing the staff and the location for shooting the films, an important aspect of the project is to see if these films can be used successfully in other hospitals. The Foundation has allocated $57,000 toward this project which is being administered by the Foundation.

RELATED GRANTS

Educational Development Center: Study to help develop a television program for teaching mathematics to children, 1972-73

New York University, School of the Arts: Support of the Alternate Media Center, 1971-72, 1972-73

PUBLIC INTEREST AND COMMUNICATIONS

The belief that it is in the public interest for broadcasters to be more accountable to the public they serve has gained a great deal of support over the past few years. A number of citizens groups have become aware of their rights under the Federal Communications Commission regulations and have tried to exercise those rights. One particularly effective group is Action for Children's Television. Devoted to improving children's television, ACT was first funded by the Foundation over three years ago and again during this program year. Another project in the public interest area is designed to train lawyers in communications law. Law professors and students at the Law School of the University of California in Los Angeles are using a Foundation grant to continue support of a training and research program in communications law. The Foundation has given general support to a third group, Media Access Project, a Washington, D.C. based public interest law firm.

ACTION FOR CHILDREN'S TELEVISION

The Foundation's initial grant to Action for Children's Television helped a group of Boston mothers translate their concern over programming on children's television into effective action. Those mothers were concerned about the quality of programs their children saw and wanted improvements. To date, the main goal of ACT has been to make the country aware of the effect television has on children's lives. In particular, ACT petitions to the Federal Communications Commission and the Federal Trade Commission have become the basis for pioneering inquiries into the effects television actually does have on children. During the past year, ACT has testified before several Senate Committees. As a result of this and other activities, several government agencies are looking into the issue of children's television. ACT has used its influence to convince the National Association of Broadcasters to recommend that commercialism be reduced. In addition, two advertising agencies have issued new guidelines for children's advertising. Major manufacturers of vitamin pills have discontinued their television advertising aimed at children. A few stations are beginning to cluster commercials at the beginning and end of programs. ACT believes that the quality of programming for children has improved on some commercial stations.

During the next two years ACT will use its two-year Markle Foundation grant of $150,000 to continue its many activities. The group intends to do more general research, prepare

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more publications, and establish a public education department with consulting services. Operating away from the marketplace, ACT is able to press broadcasters and advertisers to improve their approach to children's television and at the same time provide a source of information and aid to anyone interested in raising the quality of children's television programming.

UNIVERSITY OF CALIFORNIA, LOS ANGELES, SCHOOL OF LAW

The UCLA Communications Law Program began more than two years ago with a grant from the Markle Foundation. This initial grant was used to establish a training and research program in communications law. A renewed grant of $81,000 spread over three years—coupled with UCLA financial support—will permit continuation of these activities.

One aspect of this Communications Law Program centers on student participation in research and litigation for clients who find it difficult or impossible to obtain competent counsel. For instance, students became involved in a recent California election controversy resulting from television and radio advertisements about ballot propositions. Many of the advertisements were considered deceptive yet those who tried to point this out were not able to get radio or television air time. Using the Fairness Doctrine as its legal base, individuals participating in this project petitioned the Federal Communications Commission asking it to declare that stations were required to cover all points of view. The FCC ruling favored the petition. Consequently many hours of free air time became available to those groups who opposed the ballot propositions and the public was thus exposed to all views of the issues. Under the Communications Law Program efforts have also been made to expand access and career opportunities in the media for minorities and women.

The Program also fosters research. For example, ten students participated in an intensive study of Los Angeles television stations and as a result are preparing a *Citizens Guide to Los Angeles Television*. The *Guide* describes and compares the performance of broadcasters and tells citizens how to work for improved performance. In the past, the FCC has examined license requests on a station by station basis without considering the overall television market of the specific station. As a result of this project it is hoped that the FCC will examine license requests on a market by market basis.

Students can also take part in an internship program. Those participating earn law school credit while working with organizations authorized by the school. These range from public interest law firms to research institutes and the communications industry.

Many students, as a result of their participation in the Communications Law Program, intend to continue work in the field of communications law.

MEDIA ACCESS PROJECT

Media Access Project, a Washington public interest law firm, was established in 1971. It was formed to encourage wider public access to the mass media and relevant government information while seeking to curb abuses of corporate advertising in print and on television. Broadcasters have the power to decide on the issues their stations will carry and the ways these issues will be presented. In order to prevent abuse of this power, the Federal Communications Commission has developed the Fairness Doctrine which holds that broadcasters are responsible for presenting both sides of controversial issues. However, the Doctrine is unclear in its specific applications. Over the years many attempts have been made to clarify it and public interest law firms have been in the vanguard of those initiating these efforts.

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The Foundation has awarded $50,000 for the coming year to Media Access Project (MAP).

Last year MAP became involved in a number of different cases. Some were aimed at requiring the media, especially television, to cover important campaign issues and all candidates—whether or not they buy additional television time as part of their campaign. MAP has also initiated action on image advertising. On behalf of a group of Senators and Congressmen who contend that image advertising by major oil companies is misleading, MAP has an action before the Federal Trade Commission requesting stricter advertising rules. MAP actions also have resulted in free air time for consumers opposing the policies advertised as well as the higher rates and the use of nuclear power proposed by public utilities companies.

On behalf of one group, MAP has filed a petition with the FCC to deny the license renewal of a specific television station that distorts news programs so they reflect the opinions of the station owner. This case is particularly important because the FCC decision will establish precedence in defining the obligation of broadcasters to provide comprehensive as well as fair news and public affairs programming.

Other MAP activities are primarily educational. The firm operates a student law intern program which provides students of several major law schools with comprehensive work experience. MAP staff is also involved in a variety of activities ranging from public speaking to teaching and writing.

MAP expects to continue these activities. It also represents—free of charge—public interest groups and individuals throughout the country who seek its expertise and assistance and will continue to provide advice to those who need it.

RELATED GRANTS

Duke University, Institute of Policy Sciences and Public Affairs: Establishment of a Center of Communications Policy, 1972-73

United Church of Christ: Preparation of guidebooks for citizen action concerning the media, 1971-72, 1973-74

SOCIAL SCIENCE RESEARCH

The Markle Foundation is continuing to make research grants in the area of the social sciences. There is a general belief that both broadcast and print journalism need to be improved. Yet the assumptions used to justify proposals for improvement aren't always borne out by the facts. What *are* the facts? The Foundation hopes that some of its grants will help provide answers.

The Markle Foundation has made three grants in the area of mass communications and its supposed effects on public behavior. One grant, to the University of California at San Francisco, is for a study on the effects of television on children who have not been previously exposed to television. A second grant to the Annenberg School of Communications, University of Southern California is funding research on the effect of drug information as relayed on radio or television. A third, to the Mass Communications Research Center at the University of Wisconsin, supports a study of the influence of the press, radio and television on the political behavior and attitudes of young voters.

UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO

In the past 25 years, television has become commonplace throughout the industrialized

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nations of the world. There has been a great deal of discussion during this first quarter century of television about the influence of this widespread medium. Lately, many have been studying whether aggression depicted on television actually results in aggressive behavior on the part of the viewers. If this happens, could television presentation of constructive social behavior bring about similar positive behavior on the part of the viewers? Such an idea is very difficult to test in the United States or in other nations, for that matter, where television has been a part of daily life for many years. It would be next to impossible to separate the impact of television viewing on a child's behavior from other influences common to most nations. It would also be extremely difficult to control the television diet of any test group in such a country as ours. As a result, researchers interested in following this matter look for places where television is presently unavailable. Three such areas are South Africa, parts of Australia, and Micronesia (a group of small Pacific islands).

Micronesia is already planning for the installation of television. Officials there are most anxious to know as much as they can about potential long-term effects. A $112,000 Foundation grant to the Department of Psychiatry at the University of California in San Francisco is financing research on the effects of television on the behavior of a group of Micronesian children. This particular study will use television in a residential high school in three different ways. Adolescent students will be exposed to one of three television diets: programs showing constructive social behavior, programs featuring aggressive behavior, or programs of neutral content. The students will view their particular television diet for three hours each day over a four-week stretch. During this period, behavior will be carefully observed. It is hoped that the effects of these different programs on behavior can be measured. The study is being conducted with the cooperation of government and educational personnel. These three different television approaches will use material similar to either commercial or educational television programs in the United States.

The study should be helpful to Micronesian officials in their effort to determine the probable effects television may have on the islands' population. The study should also produce information for officials in South Africa and Australia to use before introducing the medium to their peoples. Finally, this study should shed some light on the effects of television on viewer behavior.

Given some concrete data on the relation between television viewing and viewer behavior, those interested in improving television may be able to offer sound recommendations.

UNIVERSITY OF SOUTHERN CALIFORNIA, ANNENBERG SCHOOL OF COMMUNICATIONS

In the past few years, televised drug information has come under extensive scrutiny and debate. Certain types of nonprescription drugs are constantly advertised on television. At the same time, public service messages warning against drug abuse are televised. Many people believe that television has had a very marked influence on the general public's drug behavior—particularly influencing the behavior of adolescents and the urban poor. Unfortunately there is little factual data to back this belief.

The Drug Abuse Information Research Project is beginning to collect facts. The project has already produced a series of studies on the availability and impact of drug abuse information as carried by radio, television and the press. A Foundation grant of $36,100 permits the project researchers to continue their analyses and prepare a policy document for those in

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the media and federal agencies concerned with drug abuse. The policy document will examine the need for concerted cooperation between various drug agencies in the Federal government and the many public and private drug programs producing information about drugs for showing on television. The study may confirm the belief that encouraging positive social behavior is the best way to discourage drug use, rather than most current approaches which use fear techniques to warn against anti-social behavior.

UNIVERSITY OF WISCONSIN

Eighteen year old voters participated in the 1972 presidential election for the first time in the country's history. Many researchers think that these young voters had not formed firm political predispositions and were thus more open to a range of political views than their elders had been. A few British studies confirm this general impression. However, previous American studies conducted on youthful voters in years past suggested that the young followed the partisan preferences of their parents. These older studies suggested that mass communications had little influence on voter behavior whether the voter was 21 or 40.

The 1972 presidential election, therefore, was of unique interest as a vehicle for studying the media's effects on young voters. The Mass Communications Research Center at the University of Wisconsin interviewed more than 600 young adults during and after the 1972 election. Subjects were asked about political broadcasts they heard and saw and newspaper articles they read, as well as the importance of various campaign issues, general campaign knowledge and specific candidates' stands, and how they voted. The data collected also included measures of political leanings as well as other relevant background characteristics. A

two-year Foundation grant of $29,380 is paying for analysis of this data.

The purpose of the study is to see if the mass media, by emphasizing certain issues, creates the impression that these issues are the most important. In addition, the researchers are trying to determine how open the youthful voter really is. Do the young read and watch only those political messages which support previously formed opinions or do they consider messages from all sides of the political spectrum? Researchers hope to find out what effect—if any—mass communications has in getting the youthful voter to discuss political ideas with friends and relatives. Do these discussions have any measurable impact on political participation and/or partisan preference? Another important question being explored is how young voters differ from their elders in their voting behavior.

It is hoped that this study can be used as a basis for preparing additional studies on the role of the mass media in influencing political behavior in the 1976 campaign.

RELATED GRANTS

The Cleveland State University, Department of Communication: Review of studies on the effects of the mass media on political behavior, 1972-73

The London School of Economics and Political Science: Study on television viewing behavior, 1972-73

University of Pennsylvania, Annenberg School of Communications: Analysis of the economic implications of alternative plans for removing advertising from children's television, 1972-73

JOURNALISM

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Good journalism depends on a free and responsible press as well as on good reporting and writing. In support of this belief, the Markle Foundation has made four grants which are designed to encourage a high standard of journalism in this country.

A grant to The American University is being used to explore the reasons why so many daily newspapers have stopped publication in the last several years. The Foundation has also renewed its support of The Fund for Investigative Journalism, Inc. This organization awards grants to individual journalists for specific investigative projects. A third grant, to the Department of Communication at Stanford University, is supporting a survey of the existing studies of the relationship between the government and the news media. For while there have been some studies in this area, information on this crucial relationship is still quite scarce. The Stanford team is analyzing existing studies, compiling a report on their scope and conclusions and making recommendations for future studies. The fourth grant went to The National News Council. The Council, established in 1973, is designed to serve the public interest by preserving freedom of communication and promoting accurate reporting of the news.

THE AMERICAN UNIVERSITY

From 1963 to 1972, more than 150 American daily newspapers ceased publication. Although other publications started during this time (there were 1,764 dailies in 1963 and 1,761 in 1972), they are significantly different from those that failed. The new dailies typically are located in suburban communities, are owned by chains, and have no local newspaper com-

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petition. In fact, 97% of American communities have only one daily newspaper. Absentee owners currently control two-thirds of all American dailies.

These facts are alarming. Competition between papers has always been considered a key ingredient of a free and responsible press. The public has been able to choose between diverse viewpoints as well as different news presentations, whether newspapers, radio or television. Absentee ownership of chain papers tends to result in a uniformity of news presentation which may or may not reflect accurate reporting. Many critics of absentee or chain ownership find that local issues do not receive proper coverage when the local newspaper is part of a chain. Other critics are concerned that the newspapers which fail are the better ones.

In order to gather some concrete information about the causes of newspaper failures, the Foundation has made a two-year grant of $106,000 to The American University. The study focuses on daily newspapers between 1963 and 1972. Ben Bagdikian, former assistant managing editor of the *Washington Post,* is conducting this investigation. Mr. Bagdikian is looking for trends relating to failure. Initially, a profile of each of the 167 papers that failed is being developed. These profiles spell out the newspaper's ownership, management, and corporate structure. Data relating to the specific community served as well as other competitive media in the area are also being examined. These profiles should show what, if any, role internal corporate structure may have had in the resulting failure. Advertising problems stemming from the existence of other competitive media are also being examined. A readership survey of each paper will attempt to determine why some readers may have become disenchanted with these papers. The results of this study will be published in book form.

THE FUND FOR INVESTIGATIVE JOURNALISM, INC.

Investigative journalism is a vital part of good reporting. It is also expensive and many publishers do not support investigative journalism. Because this type of reporting is such an important part of a free and responsible press, a number of nationally known journalists established The Fund for Investigative Journalism in 1968. The Foundation supported the Fund in 1972 and has renewed its support in the form of a two-year $60,000 grant.

The Fund for Investigative Journalism, based in Washington, D.C., makes small grants to men and women involved in investigative journalism projects. Of the 60 or more grants made in the past two years, the majority have resulted in published articles on a variety of subjects in the public interest. These articles ranged from a look at recreational land development schemes to a critical appraisal of AMTRAK's first year of operation. Many books have also been written as a result of Fund help. Two books already published include *Death and the Mines* by Brit Hume, an account of the United Mine Workers, and *The Politics of Heroin in Southeast Asia* by Alfred W. McCoy. Two grantees have won Pulitzers.

In addition to financial support, the Fund helps investigative journalists place their reports. For journalists seeking to establish themselves as solid investigative reporters, assistance in placing is critical. Unless the investigation results in a published article, the purpose of the investigation is lost. The Fund also makes grants to journalism reviews for general press criticism as well as important stories either missed or ignored by the general press. These grants are made in support of the belief that the press ought to be examining itself.

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STANFORD UNIVERSITY

Questions of how government and the news media *are* and *should* be related to each other are subjects of intense national debate. This debate has taken several directions. In his often-quoted Des Moines speech in 1969, former Vice President Spiro T. Agnew raised the general issue of the political bias of the news media. More recently, the debate has shifted to the right of reporters to maintain the confidentiality of their sources versus rights of grand juries in having access to all relevant materials. There is also the thought that unrestricted press freedom might damage the principle of a defendant's right to a fair trial. And while there have been some studies on the nature of government/news media relationships, much additional work is needed.

The Department of Communication at Stanford University is using its Markle Foundation grant to begin a review and an analysis of existing studies in the area of government/mass media relationships. The Stanford group is preparing a summary of what is presently known. Materials being examined include studies of: (1) the theory and philosophy of the governmental/media relationship; (2) methods and ethics of gathering government news; (3) actual news content; (4) the constraints on publication and broadcasting. The literature relating to government regulation of the media is being reviewed as well as general surveys of public attention to government news.

The Department of Communication will use its $58,000 Markle grant over the next two years. Once existing materials have been analyzed and summarized, it will be possible to present proposals for additional research in this crucial area. It is also hoped that the results of this investigation will lead to more accurate reporting and, thereby, help ensure a better informed public.

THE NATIONAL NEWS COUNCIL

The National News Council was established just over a year ago with grants from several foundations, including the Markle Foundation. The Foundation has renewed its support of The National News Council with a grant of $125,000.

The Council is composed of nationally known figures in the communications world as well as lawyers, professors, former politicians and top government officials. The sole function of the Council, as stated in its charter, is to serve the public interest in preserving freedom of communication and advancing accurate and fair reporting of news. One way of fulfilling its purpose is to examine complaints from the public concerning the accuracy and fairness of news as presented in the press or on the air.

Many people today—including some of our highest elected officials—have criticized the national news media. Although much of this criticism has never been documented, the impression has been created in the minds of the public that news reporting is often unfair and inaccurate. The National News Council believes that this undocumented criticism is dangerous to the preservation of a free press. By serving as a forum for debate about news performance, the Council believes it can contribute to the preservation of our constitutionally guaranteed free press. The Council has proposed several studies relating to press freedom, but its most important work in its brief span of existence has been the examination of specific public complaints.

During the past year, the Council received more than 150 individual complaints about the national news coverage. Most of these complaints were not specific enough to be discussed by the Council at large or did not conform to the rules established by the Council. However, 28 complaints have been investigated at

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length. Many of these cases are still being examined. The cases range from those brought by a major corporation against a particular television program's coverage of a specific issue to those brought by individuals against specific newspaper columns. The Council's course of action depends to a large degree on the nature of the case. All complaints are referred immediately to the organization against which the complaint is made in order to assure that the organization has every opportunity to respond to the charges and, hopefully, settle them. Frequently complaints are inconsequential or cannot be supported. However, many complaints are valid. These are reviewed by the Council which then issues its opinion to the parties concerned and to the public.

The Council is also sponsoring a study, soon to be published, on the important and volatile issues involved with access to the media and with freedom of the press.

RELATED GRANTS

Columbia University, School of Law: Research program on the relationship of the First Amendment to television and radio news, 1972-73

University of Massachusetts, Journalistic Studies Program: Support of an evaluation conference on the 1972-73 Markle Foundation funded survey of the New England daily newspapers, 1973-74

Southern Regional Council, Inc.: Support of the Southern Project for Investigative Journalism, 1972-73

OTHER GRANTS

Grants under $15,000 are included in the Appropriations section. Refer to page 79.

ASPEN INSTITUTE FOR HUMANISTIC STUDIES

A grant of $133,000 provides support for a long-term senior fellow in the Program on Communications and Society at the Aspen Institute for Humanistic Studies. The Markle Foundation provided core support to the Aspen Institute in 1971 for the Program on Communications and Society.

CALIFORNIA CENTER FOR RESEARCH AND EDUCATION IN GOVERNMENT

The California Center for Research and Education in Government—in conjunction with Stanford University—is conducting a study of the relationships between politicians and members of the mass media in the 1974 California gubernatorial election. The Markle Foundation has contributed $20,000 towards the support of this project.

COMMITTEE FOR ECONOMIC DEVELOPMENT

In 1972 the Committee for Economic Development, with the help of funds from the Markle Foundation, began a study of the economic and social impact of the new broadcast media. A follow-up grant of $25,000 from the Foundation is financing the completion of the project. The Committee for Economic Development is composed of leading businessmen and educators. Many of its research and educational activities focus on public policy problems.

COMMITTEE ON CHILDREN'S TELEVISION, INC.

A one-year grant of $15,000 provides general support for the Committee on Children's Television, Inc. This organization, a San Francisco-based citizens action group, was established three years ago to help local television stations

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to respond to the needs and interests of children. The Committee works closely with Action for Children's Television and complements ACT's work at a local level.

EDUCOM (INTERUNIVERSITY COMMUNICATIONS COUNCIL, INC.)

An $18,000 grant to EDUCOM (Interuniversity Communications Council, Inc.) was used to hold a three-day conference of university officials who are interested in exploring cable television as an educational medium. Participants were encouraged to experiment with this new medium at their own universities.

EDUCATIONAL BROADCASTING CORPORATION

A grant of $15,000 to the Educational Broadcasting Corporation is financing a study of the viewing habits, awareness of and attitudes toward public television of the Spanish-speaking community in New York City. It is intended that the results of this study will enable WNET-Channel 13, the public television station in New York, to serve more adequately its Hispanic audiences.

HARVARD UNIVERSITY

A one-year $76,000 grant continues support to the Program on Information Technologies and Public Policy which was established with Markle Foundation funds in the fall of 1972. The purpose of the Program is to examine new information technologies, their conflicts with other technologies and to explore their impact on public policy.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

A two-year grant of $75,000 to the Massachusetts Institute of Technology continues the

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Foundation's support of the Communications Policy Research Program. Markle Foundation funds are used to pay faculty members and graduate students working on the program as well as to finance bi-weekly seminars at which invited guests meet with the MIT group.

MELLETT FUND FOR A FREE AND RESPONSIBLE PRESS

The Foundation has provided $16,342 to the Mellett Fund For A Free And Responsible Press for the development, printing and distributing of a guide to be used in training minority members for professional status in the news media. The guide is designed to serve as a how-to-do-it book for newspaper people who wish to start minority training programs.

RACE RELATIONS INFORMATION CENTER

A $50,000 grant to the Race Relations Information Center is financing three seminars designed to improve the coverage of racial and ethnic issues. Journalists, owners, editors and those directly involved in race relations reporting are being invited to these seminars.

THE SENATE, STATE OF NEW YORK

The Foundation made a $20,000 grant to The Senate, State of New York. This grant was used to finance a conference on the appropriate role of state government in television regulation. Since New York State has already exercised some degree of authority in the area of cable television regulation, the conference was held so that lawmakers from other states could gather information about the roles states might play in cable regulation.

SOCIAL SCIENCE RESEARCH COUNCIL

A grant of $21,000 to the Social Science Research Council was made for support of a series of conferences to determine whether a comprehensive study of the relationships between the mass media and politics in the 1976 presidential election should be undertaken and, if so, in what form. Specific proposals for this study have resulted from these conferences.

UNIVERSITY OF SOUTHERN CALIFORNIA, ANNENBERG SCHOOL OF COMMUNICATIONS

A Foundation grant of $28,000 permits the Annenberg School of Communications at the University of Southern California to conduct an investigation of ways in which municipal governments might use cable television. The investigation may also lay the groundwork for an analysis of the cost and benefits of cable utilization.

UNITED CHURCH OF CHRIST, OFFICE OF COMMUNICATIONS

Three years ago there was little information available to those citizens groups who wanted to improve television stations they felt were providing poor service. Consequently, the Foundation awarded funds to the United Church of Christ, Office of Communications to publish advisory handbooks for citizens who wish to take action in this area. An additional grant of $26,000 is financing the updating and reprinting of these publications.

THE URBAN INSTITUTE

A one-year grant of $250,000 was made to The Urban Institute for continuing support of the Cable Television Information Center established in 1971 by the Markle and Ford Foundations. The Center provides technical assistance to state and municipal governments on problems of cable franchising.

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PUBLICATIONS RESULTING FROM GRANTS

Each year, many Markle Foundation grants result in the publication of books or reports, some of which are listed below. Unless otherwise indicated, the reports are available from the organization that published them. Full addresses are given on pages 87 and 88.

Academy for Educational Development, Inc.

Edward W. Barrett: *Eyes and Ears of a Nation: A Study of Manpower for American Journalism* (In Preparation)

Action for Children's Television

Peggy Charren and Evelyn Sarson, Eds.: *Who Is Talking to Our Children?* Third National Symposium on Children and Television, 1974

Evelyn Kaye: *The Family Guide to Children's Television: What to Watch, What to Miss, What to Change and How to Do It,* Pantheon Books, 1974

Aspen Institute for Humanistic Studies

Richard Adler and Walter S. Baer, Eds.: *The Electronic Box Office: Humanities and Arts on the Cable,* May 1974

Forrest P. Chisman: *The Future Directions of Political Mass Communications Research,* June 1974

Control of the Direct Broadcast Satellite: Values in Conflict (in cooperation with the U.S. Department of State), August 1974

Kas Kalba: *The Video Implosion: Models for Reinventing Television,* Harvard School of Design, June 1974

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Sig Mickelson: *Politics and the Media* (In Press)

Richard M. Polsky: *Getting to Sesame Street: Origins of the Children's Television Workshop*, May 1974

The Cleveland State University
Department of Communication

Sidney Kraus and Stephen Chaffee, Eds.: *Watergate and the Mass Media* (In Press)

Sidney Kraus and Dennis Davis: *The Effects of Mass Media on Political Behavior* (In Press)

Columbia University
Graduate School of Journalism

W. Phillips Davison and Frederick T.C. Yu, Eds.: *Mass Communication Research: Major Issues and Future Directions*, Praeger Publishers, August 1974

Columbia University
School of Law

Benno C. Schmidt, Jr.: *Access to the Press and the First Amendment: A Constitutional Study* (In Preparation)

Benno C. Schmidt, Jr. and Fred W. Friendly: *Journalism and the First Amendment* (In Preparation)

Committee for Economic Development

The New Diversity of Broadcasting: Public Policies for Changing Technologies (In Preparation)

Duke University
Institute of Policy Sciences and Public Affairs

Cable Policy Task Force: *Report to the City of Durham: CATV Franchise Applications*, 1973

Cable Policy Task Force: *Report to the Town of Chapel Hill: CATV Considerations* (In Press)

David Lange: *Confining the Cable: A Brief Comment on the SSLAC OTP Reports*, in Duke Law Journal (In Press)

EDUCOM
Interuniversity Communications Council, Inc.

Proceedings of the Conference, Dallas, Texas: *Cable Television and the University*, January 1974

Harvard University
Graduate School of Education

Aimee Dorr Leifer, Neal J. Gordon and Sherryl Browne Graves: *Children's Television More than Mere Entertainment*, in Harvard Educational Review, May 1974

Gerald S. Lesser: *Children and Television: Lessons from Sesame Street*, Random House, Inc., 1974

Harvard University
Program on Information Technologies and Public Policy

A list of the many publications available may be obtained from the Program on Information Technologies and Public Policy.

University of Illinois at Chicago Circle
Department of Sociology

John W.C. Johnstone, Edward J. Slawski and William W. Bowman: *Newsmen and Newswork: A Sociological Portrait of the American Journalist*, University of Illinois Press (In Press)

Massachusetts Institute of Technology
Center for International Studies

Ithiel de Sola Pool: *The Rise of Communications Policy Research*, in Journal of Communication, Volume 24-2, Spring 1974

Mellett Fund For A Free And Responsible Press

David and Walterene Swanston: *Minority Job Training for Newspapers* (In Press)

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University of Michigan
Institute for Social Research

F. Gerald Kline, Peter Miller and Andrew Morrison: *Needs, Uses and Gratifications: Contingent Mass Media Effects on Family Planning Information Acquisition Among Adolescents*, in Jay Blumler and Elihu Katz, Eds.: The Uses and Gratifications Approach to Mass Communications Research, Sage Publications, Inc., 1974

Peter Miller, Andrew Morrison and F. Gerald Kline: *Approaches to Characterizing Information Environments*, International Communications Association, New Orleans, April 1974

Phillip Palmgreen, F. Gerald Kline and Peter Clarke: *Message Discrimination and Information Holding about Political Affairs: A Comparison of Local and National Issues*, International Communications Association, New Orleans, April 1974

John P. Robinson: *Assessing the Impact of the Mass Media through Field Experiments*, paper to VIII World Congress of Sociology, Toronto, August 1974

The National News Council

Benno C. Schmidt, Jr.: *Access to the Media: A Constitutional Analysis* (In Preparation)

New York University, School of the Arts
Alternate Media Center

Access Workbook, Spring 1974

The 1974 Special Supplement on Library Access (insertion in *Access Workbook*) (In Press)

The Public Access Experience: Profiles of Six Centers, Spring 1974

University of Pennsylvania
Annenberg School of Communications

William H. Melody: *Children's Television: The Economics of Exploitation*, Yale University Press, 1973

The Rand Corporation

Walter Baer, Henry Geller and Joseph Grundfest: *Newspaper-Television Station Cross Ownership: Options for Federal Action*, September 1974

Stanley Besen: *The Value of Television Time and the Prospects for New Stations*, R-1328-MF, October 1973

Stanley Besen and Bridger Mitchell: *Economic Analysis and Television Regulation: A Review*, R-1398-MF, December 1973

William Lucas and Robert Yin: *Serving Local Needs with Telecommunications: Alternative Technological Applications for Public Services*, R-1345-MF, December 1973

R. E. Park: *New Television Networks*, R-1408-MF, December 1973

Robert K. Yin: *The Workshop and the World: Toward an Assessment of the Children's Television Workshop*, R-1400-MF, October 1973

Robert K. Yin, Brigitte Kenney and Karen Possner: *Neighborhood Switching Centers: Telecommunications and the Urban Library*, R-1564-MF, September 1974

Regional Plan Association

William S. Caldwell, Ed.: *How To Save Urban America*, March 1973

The Senate, State of New York

Senator Donald R. Ackerson, Ed.: *Proceedings of the National Convocation of State Legislative Leaders on Cable Communications* (In Press)

United Church of Christ
Office of Communications

Robert W. Bennett: *A Lawyer's Sourcebook: Representing the Audience in Broadcast Proceedings*, January 1974

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Ralph M. Jennings and Pamela F. Richard: *How to Protect Your Rights in Television and Radio* (In Press)

Ralph M. Jennings and Pamela F. Richard: *A Short Course on Citizen Rights in Broadcasting* (In Preparation)

The Urban Institute
Cable Television Information Center

Advanced Economics Primer (In Preparation)

Cable Television Interconnection, August 1974

Educational Uses of Cable Television, September 1974

Local Government Uses of Cable Television, March 1974

Notes From The Center (newsletter, published quarterly)

Planning Interconnection Systems: Options For The Twin Cities Metropolitan Area, June 1974

Report on Two-Way Cable Television and Public Services (an NSF study) (In Preparation)

Selecting A System Operator (In Press)

University of Wisconsin
Mass Communications Research Center

Jack M. McLeod and Lee B. Becker: *Testing the Validity of Gratification Measures Through Political Effects Analysis*, in J. Blumler and E. Katz, Eds.: The Uses and Gratifications Approach, Annual Review of Communication Research, Sage (In Press)

Jack M. McLeod and Lee B. Becker: *Testing the Validity of Media Gratification Through Political Effects Analysis*, Association for Education in Journalism Convention, San Diego, California, 1974

Jack M. McLeod, Lee B. Becker and James E. Byrnes: *Another Look at the Agenda Setting Function of the Press*, in Communication Research, Vol. 1, pp. 131-166, 1974

Jack M. McLeod and Jane D. Brown: *The Family Environment and Adolescent Television Use*, in R. Brown, Ed.: Children and Television, Cassell and Collier Macmillan Publishers Ltd., London (In Press)

Publications from the following grantees are expected during the year:

Action for Children's Television

California Center for Research and Education in Government

University of California, Los Angeles, School of Law

Claremont Graduate School, Center for Urban and Regional Studies

Massachusetts Institute of Technology, Center for International Studies

University of Southern California, Annenberg School of Communications

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FOUNDATION MEETINGS

In the year July 1, 1973 through June 30, 1974, covered in this Report, meetings of the Board of Directors were held November 5, 1973, March 12, 1974, and June 11, 1974. The Annual Meeting of Members of the Foundation was held on November 5, 1973.

SCHOLARS IN ACADEMIC MEDICINE

MARKLE SCHOLAR MEETING 1973

The twenty-first annual meeting of the Markle Scholars was held at the Hotel Del Coronado, San Diego, California, September 16-18, 1973. One hundred fifty-seven Scholars and their wives attended the meeting, the topic of which was "Reform in Health Care: Searching for Alternatives." The nine guest speakers who took part in the meeting were: Dr. Michael J. Halberstam, internist in private practice in Washington, D.C.; Mr. Gordon McLachlan, President, Nuffield Provincial Hospital Trust, London, England; Mr. Walter J. McNerney, President, Blue Cross Association, Chicago and Vice Chairman, President's Commission on Health Education; Mr. Thomas G. Moore, Jr., Executive Director, California Council for Health Plan Alternatives; Dr. Harry Schwartz, Editorial Board, *The New York Times* (on leave), Visiting Professor, Department of Medicine, The College of Physicians and Surgeons, Columbia University and Distinguished Professor, State University of New York; Dr. Donald Seldin, Chairman, Department of Medicine, University of Texas Southwestern; Dr. Victor Sidel, Chairman, Department of Social Medicine, Montefiore Hospital Medical Center and Chairman, Department of Community Health, Albert Einstein College of Medicine, MHMC campus; Mr. Thomas M. Tierney, Director, Bureau of Health Insurance, Social Security Administration, Department of Health, Education and Welfare; and Dr. Quentin David Young, Director, Division of Medicine, Cook County Hospital, Chicago.

The committee that planned the meeting included the following fourth-year Markle Scholars and their wives: Dr. Frank M. Yatsu, University of California, San Francisco, Chairman, and Mrs. Yatsu, Chairman, Ladies' Committee; Dr. Thomas F. Cottrell, New York Medical College, and Mrs. Cottrell; Dr. Michael J. Dunn, University of Vermont, and Mrs. Dunn; and Dr. J. Wayne Streilein, University of Texas Southwestern, and Mrs. Streilein.

THE JOHN M. RUSSELL AWARD

On September 18, 1973, preceding the final dinner of the Annual Meeting of the Markle Scholars, the John M. Russell Award was presented by the Scholars to Congressman Paul G. Rogers of Florida. Congressman Rogers is Chairman of the House Sub-Committee on Public Health and the Environment. Congressman Rogers was the twelfth recipient of the Award, which is given for "an outstanding contribution in academic medicine, the impact of which should have been felt widely and outside the recipient's own specialty field and beyond his immediate entourage." Dr. Hibbard E. Williams, Chairman of the 1972 Annual Scholar Meeting and Chairman of the 1973 Award Committee, presided and presented the Award on behalf of the Scholars.

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REPORTS FROM SCHOLARS IN ACADEMIC MEDICINE

On June 30, 1974, grants expired for twenty-five men and women in the twenty-second and last group of Markle Scholars who were appointed in 1969. Following are accounts of their activities during the five years of the grant:

NORMAN H. BASS, M.D., Professor of Neurology, University of Virginia School of Medicine. 1967-70, Assistant Professor of Neurology; 1970-73, Associate Professor of Neurology; 1970- , Associate Professor of Pharmacology; 1971-72, Visiting Professor, University of Gothenburg, Sweden; 1974- , present rank and institution.

Teaching: Lectures and seminars in clinical neurology, neurochemistry, and neuropharmacology for medical students, graduate students, and house officers. Rounds and patient care demonstrations for medical students and house officers. Physical diagnosis and human pharmacology for medical students. Research advisor for medical students and postdoctoral fellows. Course in neurochemistry for graduate students.

Administration: Committee on Admissions, University of Virginia School of Medicine, 1968-71; Medical Advisory Committee, National Multiple Sclerosis Society, Blue Ridge Chapter, 1968-72; Committee on Disadvantaged Students, 1969-70; Committee on Irreversible Coma and Death, 1970-71; Committee on Integrated Neuroscience Program, 1971-73; Executive Committee for Alfred P. Sloan Postdoctoral Training Program in Comparative Neurology and Laminar Organization, 1973- ; Clinical Research Center Advisory Committee, 1974- ; Director, Laboratory for Clinical Neurosciences: a research center for the Department of Neurology and Neurological Surgery, 1974- .

Research: Efforts have been directed to understanding the effects of various metabolic derangements on the postnatal maturation of rat and human cerebral cortex. Research goals have been directed toward three general areas: (1) to provide a neurochemical counterpart of both ultrastructural and electrophysiological studies of normal maturation; (2) to assess the vulnerability of the developmental sequence to pharmacological derangements during phases of mitosis, migration, and differentiation of neural cells; and (3) to explore mechanisms of such vulnerability as they relate to brain barrier systems. The studies suggest that a large number of human disorders, presently classified under the heading of "mental retardation," may be the result of exogenous and

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endogenous agents which may alter the complex program of development of the cerebral cortex.

Other: S. Weir Mitchell Research Award, American Academy of Neurology, 1967; Research Career Development Award, 1971- ; Who's Who in the South and Southwest, 1973- ; faculty participant, Advanced Study Institute on the Chemistry of Brain Development, 1970. Member: American Academy of Neurology, American Society for Neurochemistry, International Society of Neurochemistry, American Association of Anatomists, Society for Neuroscience, Child Neurology Society.

Selected publications:

Bass, Norman H. Influence of neonatal undernutrition on the development of rat cerebral cortex: a microchemical study. *Advances in Experimental Medicine and Biology: Chemistry of Brain Development*, A. M. Davidson and R. Paoletti, Eds. New York: Plenum Press, 1971.

_____, H. H. Hess, A. Pope and C. Thalheimer. Quantitative cytoarchitectonic distribution of neurons, glia, and DNA in rat cerebral cortex. *Journal of Comparative Neurology*, 143:481-490, 1971.

_____ and P. Lundborg. Cerebral edema: the effect of dexamethasone during brain maturation in the rat. *Archives of Neurology*, 29:151-157, 1973.

_____ and P. Lundborg. Postnatal development of bulk flow in the cerebrospinal fluid system of the albino rat. *Brain Research*, 52:323-332, 1973.

_____ and P. Lundborg. Postnatal development of mechanisms for the rapid efflux of organic acids from the cerebrospinal fluid system of the rat. *Brain Research*, 56:285-298, 1973.

_____ and P. Lundborg. Respiratory depressant effects of morphine on the central nervous system of the infant rat. *Biology of the Neonate*, 23:456-468, 1973.

_____, M. G. Netsky and E. Young. Effect of neonatal malnutrition on developing cerebrum. I. Microchemical and histologic study of cellular differentiation in the rat. II. Microchemical and histologic study of myelin formation in the rat. *Archives of Neurology*, 23:289-302, 303-313, 1970.

_____, M. G. Netsky and E. Young. Microchemical studies of postnatal development in rat cerebrum. I. Migration and differentiation of cells. II. Formation of myelin. *Neurology*, 19:258-268, 405-414, 1969.

_____, E. J. Witmer and F. E. Dreifuss. A pedigree study of metachromatic leukodystrophy: biochemical identification of the carrier state. *Neurology*, 20:52-62, 1970.

_____ and E. Young. Effects of hypothyroidism on the differentiation of neurons and glia in developing rat cerebrum. *Journal of Neurological Sciences*, 18:155-173, 1973.

CHESTON M. BERLIN, JR., M.D., Associate Professor of Pediatrics, Associate Professor of Pharmacology and Assistant Dean for Student Affairs, Pennsylvania State University College of Medicine at Hershey. 1968-71, Assistant Professor of Pediatrics, George Washington University School of Medicine; 1971- , present rank and institution.

Teaching: Lectures to first and second year medical students in pharmacology and physical diagnosis. Lectures, seminars, and rounds with medical students and residents on the pediatric service (inpatient, outpatient, intensive care). Continuing education for nurses and physicians in pediatrics and drug therapy. Lay group and school talks. Course in pharmacology for high school students.

Administration: Chief, Pediatric Inpatient Unit and Chief, Pediatric Intensive Care Unit, The Milton S. Hershey Medical Center; Chairman, Medical Selection (Admission) Committee, 1972- ; Assistant Dean for Student Affairs, 1972- . Member: P.S.U. University Genetics Committee (awards M.S. and Ph.D. in genetics), Pre-Health Education Advisor Committee. Numerous other medical school and hospital committees.

Research: Major interests have been in the area of enzyme regulation and human pharmacology. Efforts in the latter area have been in (1) drug effects on the fetus and newborn and (2) drug metabolism.

Other: Member: Pediatric Panel, U.S.P. Consultant in Genetics, Montgomery County, Md. Pediatrician, primary and consultant pediatric care (in- and outpatient), M. S. Hershey Medical Center.

Selected publications:

Berlin, Cheston M., Jr. The drug problem. *Clinical Proceedings of the Children's Hospital of D.C.*, 27:74-86, 1971.

_____. The Pediatric Intensive Care Unit. *Medical Annals of the District of Columbia*, 39:483-487, 1970.

_____. Treatment of cyanide poisoning in children. *Pediatrics*, 46:794-796, 1970.

_____ and C. B. Jacobson. Psychedelic drugs—a threat to reproduction. *Federation Proceedings*, 31:1326-1330, 1972.

_____, J. M. Stackman and E. S. Vesell. Drug interaction: quinine-antipyrine and quinine-quinine. *The Pharmacologist*. In press.

Chignell, C. F., E. S. Vesell, D. K. Starkweather and Cheston M. Berlin, Jr. The binding of sulfaphenazole to fetal, neonatal, and adult human plasma albumin. *Clinical Pharmacology and Therapeutics*, 12:897-901, 1971.

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Guillette, R. D., Cheston M. Berlin, Jr. and J. D. Finkelstein. Reye's syndrome. *Clinical Proceedings of the Children's Hospital of D.C.*, 27:224-238, 1971.

Jacobson, C. B. and Cheston M. Berlin, Jr. Possible reproductive detriment in LSD users. *Journal of the American Medical Association*, 222:1367-1373, 1972.

Katon, R. and Cheston M. Berlin, Jr. The physician's role in controlling heroin addiction. *Clinical Proceedings of the Children's Hospital of D.C.*, 27:291-311, 1971.

Picciano, D. J., Cheston M. Berlin, Jr., S. L. H. Davenport and C. B. Jacobson. Human ring chromosomes: a report of five cases. *Annals of Genetics*, 15:241-247, 1972.

JAMES P. COMER, M.D., M.P.H., Associate Professor of Psychiatry, Yale Child Study Center and Associate Dean, Yale Medical School. 1968-70, Assistant Professor of Psychiatry; 1969- , Associate Dean; 1970- , Associate Professor of Psychiatry.

Teaching: Lectures and seminars in child and social psychiatry for medical students, medical residents, epidemiology and public health students and allied health and education students.

Administration: Associate Dean for Student Affairs; Chairman, Student Progress Committees, 1969- ; Chairman, Minority Recruitment Committee, 1969- ; member, Board of Permanent Officers, 1973- ; member, various Medical School and University Ad Hoc Committees.

Research: Research efforts have centered on developing techniques to improve the quality of education in inner-city schools and evaluating and describing the effect. The general approach has been to apply the principles of psychiatry and the behavioral sciences to every aspect of the school program. Particular interest has been the effect of an improved relationship climate on academic, social and psychological development.

Other: Chairman, Committee of Black Psychiatrists of the American Psychiatric Association; Chairman, Committee of Adolescence, the American Academy of Child Psychiatry; Editorial Board, *American Journal of Orthopsychiatry, Journal of Youth and Adolescence, Journal of Negro Education;* Editorial Consultant, *Journal of American Medical Association;* Board of Advisors and Consultants, Children's Television Workshop; Advisory Committee, Macy Faculty Fellows, Josiah Macy, Jr. Foundation; Professional Advisory Council, The National Association of Mental Health, Inc.

Selected publications:

Comer, James P. *Beyond Black and White.* Quadrangle (New York Times Book Company), 1972.

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_____. The Black American child in school. *The Child and His Family: Children at Psychiatric Risk*, Volume III, E. James Anthony and Cyrille Koupernik, Eds. New York: John Wiley & Sons, 1974.

_____. Child development and social change: some points of controversy. *The Journal of Negro Education*, Vol. 20, No. 3, 1971.

_____. The need is now. *Mental Hygiene*, 57:3-7, 1973.

_____. Research and the Black backlash. *American Journal of Orthopsychiatry*, 40:8-11, 1970.

_____. Self esteem and the Black American future. *Renaissance 2: The Journal of Afro-American Studies at Yale*, 1971.

_____. The social power of the Negro. *The Scientific American*, 216:21-24, 1967.

_____. Technology and the inner city school. *To Improve Learning: An Evaluation of Instructional Technology*, Volume II, Sidney G. Tickton, Ed., with the staff of the Academy for Educational Development. New York: R.R. Bowker Company, 1971.

_____. White racism: its root, form and function. *American Journal of Psychiatry*, 126:802-806, 1969.

_____ and Claudewell S. Thomas. Racism and mental health services. *Racism and Mental Health*, Charles V. Willie, Bernard M. Kramer and Bertram S. Brown, Eds. University of Pittsburgh Press, 1973.

THOMAS S. COTTRELL, M.D., Associate Dean, New York Medical College, Associate Professor of Clinical Pathology, Assistant Professor of Medicine. 1968-73, Assistant Professor of Pathology; 1973- , present rank and institution.

Teaching: Lectures and seminars in pathology and pulmonary pathology for medical students. Hospital rounds, seminars, and demonstrations on the pulmonary service and in the Pulmonary Intensive Care Unit for medical students and house officers. Member: Cancer Teaching Committee, Pulmonary Curriculum Committee.

Administration: President's Cabinet, New York Medical College, 1970-71; Director, Autopsy Service, Flower and Fifth Avenue Hospitals, 1969-71; Chairman, Mortality Committee, Flower and Fifth Avenue Hospitals, 1969-72; Steering Committee of Faculty Senate, 1970-72; Admissions Committee, 1971- .

Research: Basic interest and efforts have been in the relationship of structure to function at the ultrastructural level with particular interest in chronic pulmonary disease. Current activities are in ultrastructural, metabolic, and immunologic aspects of experimental lung disease.

Selected publications:

Cottrell, T. S., O. R. Levine, R. M. Senior, J. Wiener, D. Spiro and A. P. Fishman. Electron microscopic alterations at the alveolar level in pulmonary edema. *Circulation Research*, 21:783, 1967.

Hsu, J. T. and T. S. Cottrell. Pulmonary sarcoidosis: unilateral hilar adenopathy presenting as an endobronchial tumor. *Radiology*, 98:385, 1971.

Irwin, R. S., T. S. Cottrell, K. Hsu, W. R. Griswold and H. M. Thomas. Idiopathic pulmonary hemosiderosis: an electron microscopic and immunofluorescent study. *Chest*, 65-41, 1974.

Sonnenblick, E. H., D. Sprio and T. S. Cottrell. Fine structural changes in heart muscle in relation to the length-tension curve. *Proceedings of the National Academy of Science*, 49:193, 1963.

Spotnitz, H. M., W. D. Spotnitz, T. S. Cottrell, D. Spiro and E. H. Sonnenblick. Cellular basis for volume related wall thickness changes in the rat left ventricle. *Journal of Molecular and Cellular Cardiology*, 6:216, 1974.

MICHAEL J. DUNN, M.D., Associate Professor of Medicine, University of Vermont College of Medicine and Associate Chairman, Department of Medicine. 1969-73, Assistant Professor of Medicine and Co-Director, Nephrology Unit; 1973- , Associate Professor of Medicine; 1974- , Associate Chairman, Department of Medicine.

Teaching: Lectures and seminars for medical students in medical physiology and in internal medicine as related to renal disease, hypertension and salt and water problems. Director, Basic Mechanisms of Disease Course for senior students. Continued involvement with house staff with emphasis on clinical teaching related to renal disease. Involvement in continuing education for practicing physicians with lectures to local societies apart from the Medical School.

Administration: Chairman, Research Committee, Department of Medicine. Member: Executive Committee, Department of Medicine; Medical Practice Board, University Health Center; President's Council, University Health Center; Renal Advisory Committee, Medical Center Hospital of Vermont; Board of Trustees, New England Interhospital Organ Bank.

Research: Research endeavors have centered around understanding cation transport in erythrocytes and in the kidney. Additionally, increasing work has been devoted to an understanding of hypertension with particular

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emphasis on the role of the kidney, prostaglandins, and the renin-angiotensin-aldosterone system.

Selected publications:

Dunn, M. J. Alterations of red blood cell sodium transport during malarial infection. *Journal of Clinical Investigation*, 48:674-684, 1969.

_____. Diuretics and red blood cell transport of cations. In Modern Diuretic Therapy in the Treatment of Cardiovascular and Renal Disease, A.F. Lant and G.M. Wilson, Eds. *Excerpta Medica*, The Netherlands, International Congress Series No. 268:196, 1973.

_____. The effects of transport inhibitors on sodium outflux and influx in red blood cells: evidence for exchange diffusion. *Journal of Clinical Investigation*, 49:1804-1814, 1970.

_____. Magnesium depletion in the rhesus monkey: induction of magnesium dependent hypocalcemia. *Clinical Science*, 41:333-344, 1971.

_____. Ouabain-uninhibited Na transport in human erythrocytes: evidence against a second pump. *Journal of Clinical Investigation*, 52:658-670, 1973.

_____. Ouabain-uninhibited Na transport in human erythrocytes: the effects of triflocin. *Biochimica et Biophysica Acta*, 255:567-571, 1972.

_____. Red blood cell calcium and magnesium: effects upon sodium and potassium transport and cellular morphology. *Biochimica et Biophysica Acta*, May 1974.

_____ and R. Grant. The influence of the extracellular counterion on the sodium dependent ouabain uninhibited sodium efflux from human erythrocytes. *Biochimica et Biophysica Acta*, May 1974.

_____ and R.L. Tannen. Low renin hypertension: an editorial review. *Kidney International*, May 1974.

Ingerowski, R., G. Ingerowski and M.J. Dunn. The effects of guanidinosuccinic acid and methylguanidine on erythrocyte cation transport. *Proceedings of the Society of Experimental Biology and Medicine*, 139:80-83, 1972.

PAUL J. FRIEDMAN, M.D., Associate Professor of Radiology, University of California, San Diego, School of Medicine. 1968-69, Assistant Professor of Radiology; 1969- , present rank and institution.

Teaching: Lectures and demonstrations in radiological anatomy for second year medical students. Lectures on roentgen pathology of the lung for medical students. Tutorials in introductory radiology for first year students. Film reading supervision in pulmonary and general radiology for residents. Supervision of pulmonary fellows electing radiology. Demonstration of films at conferences

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with the Department of Medicine house officers and the fellows and staff of the Pulmonary Division. Lectures on pulmonary radiology and roentgen pathologic correlation at several postgraduate courses for radiologists and chest physicians.

Administration: Director, Division of Pulmonary Radiology, University Hospital, 1968-74; Committee on Educational Policy, 1968-70; Recruitment and Admissions Committee, School of Medicine, 19[illegible] Chairman, 1970-71; Clinical Core Curriculum Review Committee, 1969-71; Faculty Council, School of Medicine, 1970-71; Academic Senate Budget and Inter-departmental Relations Committee, 1972-74; Chairman, Committee on Resident and Student Education, Department of Radiology, 1974.

Research: Continued interest in physiology of the hypertensive and over perfused pulmonary circulation. Collaborative studies on bronchial dynamics and relation to pleural pressure, using tantalum bronchography. Morphologic studies on reaction of the lung to alveolarized metal powders. Development of a full chest image intensifier for whole lung video densitometry. Collaborative studies in radiologic-pathologic correlation. Utilization of new clinical radiologic techniques, such as the prone chest film.

Other: Editorial Board, *Investigative Radiology*, 1973-74; Executive Committee of the Association of University Radiologists, 1974; UCSD Madrigal Singers, 1968-74; Fleischner Society, 1971-74.

Selected publications:

Friedman, Paul J. Direct magnification angiography and correlative pathophysiology in experimental pulmonary hypertension. *Investigative Radiology*, 7:474-495, 1972.

_____. Pulmonary patterns—concepts of alveolar and interstitial diseases. *Current Concepts in Radiology*, E.J. Potchen, Ed. St. Louis: The C.V. Mosby Co., 1972.

_____. Visualization of small vessels in experimental pulmonary hypertension. *Small Vessel Angiography: Imaging, Morphology, Physiology, and Clinical Applications*, K. Hilal, Ed. St. Louis: The C.V. Mosby Co., 1973.

_____ and R.H. Greenspan. Observations on magnification radiography. *Radiology*, 92:549-557, 1969.

_____, R.A. Harley and A.A. Liebow. Comparative pathophysiology of pulmonary hypertension: development of a model. *Comparative Pathophysiology of Circulatory Disturbances*, C.M. Bloor, Ed. New York: Plenum Press, 1972.

_____, A.M. Jonas and C.B. Carrington. Observations on the vascularization of secondary pulmonary neoplasms. *Investigative Radiology*. In press.

_____ and G.M. Tisi. "Alveolarization" of tantalum powder in experimental bronchography and the clearance of inhaled particles from the lung. *Radiology*, 104:523-535, 1972.

Gosink, B.B., Paul J. Friedman and A.A. Liebow. Bronchiolitis obliterans: radiologic-pathologic correlation. *American Journal of Roentgenology, Radium Therapy and Nuclear Medicine*, 117:816-832, 1973.

Liebow, A.A., C.B. Carrington and Paul J. Friedman. Lymphomatoid granulomatosis. *Human Pathology*, 3:457-558, 1972.

JORAM HELLER, M.D., Ph.D., Associate Professor of Ophthalmology/Biochemistry, University of California, Los Angeles, School of Medicine. 1966-69, Assistant Professor of Ophthalmology/Biochemistry; 1969- , present rank and institution.

Teaching: Lectures and seminars in ophthalmic biochemistry to medical students and residents. Thesis advisor for graduate students.

Administration: Jules Stein Eye Institute Advisory Committee and Department of Ophthalmology Committee, 1966- ; UCLA Medical School admissions committee, 1972-74.

Research: Research during this period has been focused on the structure and function of visual pigments. The purification, composition and partial structure of visual pigments has been established and the mode of operation of the visual pigments in the photoreceptor cell has been investigated.

Selected publications:

Heller, Joram. Comparative study of a membrane protein. Characterization of bovine, rat, and frog visual pigments$_{500}$. *Biochemistry*, 8:675-679, 1969.

_____. Isomerizations in the visual cycle. *The Enzymes*, Vol. VI, Third Edition, P. Boyer, Ed. New York: Academic Press, Inc., 1972.

_____. Structure of visual pigments. I. Purification, molecular weight, and composition of bovine visual pigment$_{500}$. *Biochemistry*, 7:2906-2913, 1968.

_____. Structure of visual pigments. II. Binding of retinal and conformational changes on light exposure to bovine visual pigment$_{500}$. *Biochemistry*, 7:2914-2920, 1968.

_____ and J. Horwitz. Conformational changes following interaction between retinol isomers and human retinal-binding protein and between the retinol-binding protein and prealbumin. *The Journal of Biological Chemistry*, 248(18):6308-6316, 1973.

_____ and J. Horwitz. Interactions of retinol-binding

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protein with various chromophores and with thyroxine-binding protein. A model for visual pigments. *Experimental Eye Research*, 18:41-49, 1974.

_____ and M.A. Lawrence. Structure of the glycopeptide from bovine visual pigment$_{500}$. *Biochemistry*, 9:864-869, 1970.

_____ and T. Ostwald. Rhodopsin: conformational changes in a membrane protein. *Annals of the New York Academy of Sciences*, 195:439-449, 1972.

_____, T.J. Ostwald and D. Bok. Effect of illumination on the membrane permeability of rod photoreceptor discs. *Biochemistry*, 9:4884-4889, 1970.

_____, T.J. Ostwald and D. Bok. The osmotic behavior of rod photoreceptor outer segment discs. *The Journal of Cell Biology*, 48:633-649, 1971.

PERRY A. HENDERSON, M.D., Associate Professor of Obstetrics and Gynecology, University of New Mexico School of Medicine. 1968-71, Assistant Professor of Obstetrics and Gynecology; 1972-74, Acting Chairman; 1971- present rank and institution.

Teaching: Lectures and seminars in obstetrics and gynecology for medical students and house officers. Coordinator for third and fourth year students on obstetrics and gynecology. Attending physician on clinical services of obstetrics and gynecology. Advisor and preceptor for medical students.

Administration: Athletic Council, 1969-70; President's Committee on Minority Groups, 1969-70; Admissions Committee, School of Medicine, 1969-71; Clinical Science Subcommittee of Curriculum Committee, 1969-72; Executive Committee, Bernalillo County Medical Center, 1972- ; Induced Abortion Committee, 1972- ; Committee of Chairmen, School of Medicine, 1972- ; Project Director, New Mexico Maternity and Infant Care Project, 1968- .

Research: Research interests have continued in the area of hematological problems in obstetrics and gynecology. Primary efforts were directed in the field of Rh disease, and the management of the Rh negative patient including intrauterine fetal transfusions.

Other: 1972- , HEW, Maternal and Child Health Service Research Grants Review Committee.

Selected publications:

Henderson, P.A. Anemia of pregnancy. *Obstetrics and Gynecology*, 24:752, 1964.

_____. Prenatal and intrapartum care in "ethical dilemmas in current obstetric and newborn care." *Report*

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of the Sixty-Fifth Ross Conference on Pediatric Research. Duck Key, Florida, May, 1972.

_____ and V.A. Henderson. Teamwork in maternity and infant care projects. *Obstetrics and Gynecology,* 39:401, 1972.

_____ and R.S. Hillman. Characteristics of iron dextran utilization in man. *Blood,* 34:357, 1969.

_____ and R.B. Scott. Foreign body vaginitis caused by toilet tissue. *American Journal of Diseases of Children,* 111:529, 1966.

Hillman, R.S. and P.A. Henderson. Control of marrow production by the level of iron supply. *Journal of Clinical Investigation,* 48:454, 1969.

REX L. JAMISON, M.D., Associate Professor of Medicine, Stanford University School of Medicine and Head, Division of Nephrology, Stanford University Hospital. 1969-71, Assistant Professor of Physiology and Biophysics, Washington University School of Medicine; 1969-71, Assistant Professor of Medicine; 1969-71, Chief, Renal Division, The Jewish Hospital of St. Louis; 1971- , present rank and institution.

Teaching: Lectures in physiology, laboratory medicine, and nephrology for graduate and medical students. Attending and consulting rounds for medical students and house officers. Postgraduate lectures in continuing education for physicians. Research supervision for undergraduate, graduate and medical students and postdoctoral fellows. Student advisor.

Administration: Head, Division of Nephrology; Director, Nephrology Clinic; Chairman, Dialysis Transplant Committee. Member: Executive Committee, Department of Medicine; Medical School Admissions Committee; Utilizations Review Committee.

Research: Studies of renal function, in particular the urinary concentrating mechanism; renal tubule transport of sodium, potassium, calcium and urea; intrarenal functional heterogeneity; effects of ischemia on the microcirculation of the kidney.

Other: Editorial Board, *American Journal of Physiology* and *Journal of Applied Physiology;* Councillor, Western Society for Clinical Research; Chairman, West Coast Salt and Water Club.

Selected publications:

Jamison, Rex L. Countercurrent systems. *Kidney and Urinary Tract Physiology,* K. Thurau, Ed. Lancaster: MTP. In press.

_____ Intrarenal heterogeneity: the case for two functionally dissimilar populations of nephrons in the mammalian kidney. *American Journal of Medicine,* 54:281-289, 1973.

_____ Recent advances in the physiology of the loops of Henle and collecting tubule system. *Circulation Research.* In press.

_____, J. Buerkert and F.B. Lacy. A micropuncture study of collecting tubule function in rats with hereditary diabetes insipidus. *Journal of Clinical Investigation,* 50: 2444-2452, 1971.

_____, J. Buerkert and F.B. Lacy. A micropuncture study of Henle's thin loop in Brattleboro rats. *American Journal of Physiology,* 224:180-185, 1973.

_____, N.R. Frey and F.B. Lacy. Calcium reabsorption in the thin loop of Henle. *American Journal of Physiology.* In press.

_____ and F.B. Lacy. Evidence for urinary dilution by the collecting tubule. *American Journal of Physiology,* 223:898-902, 1972.

Marcus, D.C. and Rex L. Jamison. Photometric determination of picomole quantities of calcium. *Analytical Chemistry,* 44:1523-1525, 1972.

Pennell, J.P., F.B. Lacy and Rex L. Jamison. A study of the concentrating process of the descending limb in vivo. *Kidney International,* 5:337-347, 1974.

Summers, W.K. and Rex L. Jamison. The no reflow phenomenon in renal ischemia. *Laboratory Investigation,* 25:635-644, 1971.

OLGA JONASSON, M.D., Associate Professor of Surgery, Abraham Lincoln School of Medicine, University of Illinois College of Medicine. 1967-70, Assistant Professor of Surgery, University of Illinois College of Medicine; 1970- , present rank and institution.

Teaching: Lectures and seminars in general surgery and transplantation surgery and immunology for clinical and preclinical medical students and graduate students. Rounds and patient care demonstrations for medical students and house officers. Participant in continuing education programs on campus and locally. Graduate College faculty.

Administration: Numerous local school and hospital committees; Coordinator, Resident Training, Department of Surgery, 1973- ; Associate Director, Academic Surgery Training Grant; Chief, Division of Transplantation Surgery, University of Illinois Hospital, 1968- . Initiated review of goals and evaluation of surgery residency training program in collaboration with Center for Educational Development, University of Illinois.

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Research: Emphasis on histocompatibility testing for clinical organ transplantation, laboratory serving as central resource for State of Illinois. Ongoing investigations into pre-immunization both clinically and experimentally. New work in study of vascular complications of diabetes in a primate model, using endocrine pancreas transplantation in long-term diabetes with vasculitis.

Other: Surgical Training Grants Study Section, National Institute of General Medical Sciences, 1971-73; Task Force on Immunology and Disease, National Institute of Allergy and Immunological Disease, 1972; Renal Disease Advisory Committee, State of Illinois Department of Public Health, 1973– ; Surgery A Study Section, National Institutes of Health, 1974– ; Consultation on Death and the Dying Patient, Luthern Church of America.

Selected Publications:

Jonasson, Olga. Renal transplantation: certain immunological considerations. *Medical Clinics of North America*, 55:193-204, 1971.

_____, E.A. Lichter, W.M. Hamby, R.D. Smith, C.L. Gantt and L.M. Nyhus. Donor selection for renal transplantation based on genotypic analysis of HL-A in a family. *Archives of Surgery*, 101:219-225, 1970.

Andersen, O., C. Cohen and Olga Jonasson. Platelet survival in rabbits to detect hyperacute rejection. *Journal of Surgical Research*, 14:193-199, 1973.

Andersen, O.S., R.G. Tissot, C. Cohen and Olga Jonasson. Platelet survival test: a method to detect preimmunization in rabbits. *Transplantation*, 15:101-104, 1973.

Andersen, O.S., R.G. Tissot, C. Cohen and Olga Jonasson. Platelet survival test: an accurate prediction of hyperacute rejection of renal allografts in rabbits. *Transplantation*, 15:105-110, 1973.

Arruda, J.A.L., L.F. Gutierrez, Olga Jonasson, V.K.G. Pillay and N.A. Kurtzman. Renal vein thrombosis in kidney allografts. *Lancet*, II:585-586, 1973.

Caseley, J., V.K. Moses, E.A. Lichter and Olga Jonasson. Isoimmunization of hemodialysis patients: leukocyte-poor vs whole blood transfusions. *Transplantation Proceedings*, III:365-367, 1971.

Pillay, V.K.G., N.A. Kurtzman, J.R. Manaligod and Olga Jonasson. Selective thrombocytopenia due to localized microangiopathy of renal allografts. *Lancet*, II:988-991, 1973.

Suarez-Chacon, R. and Olga Jonasson. Incidence, specificity and significance of presensitization of prospective renal transplant recipients. International Symposium on Standardisation of H1-A Reagents, 1972. *Series Immunobiological Standardisation*, 18:57-60, 1973.

Suarez-Chacon, R. and Olga Jonasson. Isoimmunization of potential kidney transplant recipients: general frequency and some associated factors. *Transplantation Proceedings*, IV:577-579, 1972.

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HERMES A. KONTOS, M.D., Ph.D., Professor of Medicine, Medical College of Virginia, Health Sciences Division of Virginia Commonwealth University. 1969-70, Assistant Professor of Medicine; 1970-72, Associate Professor of Medicine; 1972- , present rank and institution.

Teaching: Lectures to medical students on cardiovascular physiology and pathophysiology and on clinical aspects of selected cardiovascular diseases. Lectures, seminars and rounds for medical house staff members on cardiovascular physiology, pathophysiology and disease. Attending on medical wards and consultant in cardiovascular diseases.

Administration: Acting Chairman, Division of Cardiovascular Disease, 1973-74; Director of Research, Cardiovascular Laboratories; Chairman, Committee on first year medical student electives. Member: Committee on fourth year medical student electives; Cardiovascular Curriculum Committee; Research and Education Advisory Committee; McGuire Veterans Administration Hospital; Graduate Council, 1969-72.

Research: Main present interest is in the mechanisms of regulation of the microcirculation of the brain in health and in disease. Other work has dealt with local mechanisms of regulation of blood flow to skin and skeletal muscle, the pathophysiology of certain peripheral vascular disorders and investigation of the mechanisms of adaptation upon prolonged exposure to abnormal atmospheres, such as high altitudes or high CO_2. Also involved in investigation of the physiological consequences of cardiac transplantation.

Other: Consultant, McGuire Veterans Administration Hospital. Occupant, Virginia Heart Association Chair of Cardiovascular Research, 1972-74. Member: Editorial Board, *Stroke;* Research Committee, Virginia Heart Association; Board of Directors, Richmond Area Heart Association. Chairman, Research Committee, Richmond Area Heart Association.

Selected publications:

Kontos, Hermes A. Role of hypercapnic acidosis in the local regulation of blood flow in skeletal muscle. *Circulation Research*, 28:1-98, 1971.

_____ and R.R. Lower. Role of beta-adrenergic receptors in the circulatory response to hypoxia. *American Journal of Physiology*, 217:756, 1969.

_____, A.J. Raper and J.L. Patterson, Jr. Mechanisms of action of CO_2 on pial precapillary vessels. *European Neurology*, 6:114, 1972.

_____, D.W. Richardson, A.J. Raper, Zubair-ul-Hassan and J.L. Patterson, Jr. Mechanisms of action of hypocapnic alkalosis on limb blood vessels in man and dog. *American Journal of Physiology*, 223:1296, 1972.

_____, M.D. Thames, A. Lombana, C.O. Watlington and F. Jessee, Jr. Vasodilator effects of local hypercapnic acidosis in dog skeletal muscle. *American Journal of Physiology*, 220:1569, 1971.

_____, M.D. Thames and R.R. Lower. Responses to electrical and reflex autonomic stimulation in dogs with cardiac transplantation before and after reinnervation. *Journal of Thoracic and Cardiovascular Surgery*, 59:382, 1970.

_____, G.W. Vetrovec and D.W. Richardson. Role of carotid chemoreceptors in circulatory response to hypoxia in dogs. *Journal of Applied Physiology*, 28:561, 1970.

_____ and A.J. Wasserman. Effect of reserpine in Raynaud's phenomenon. *Circulation*, 39:259, 1969.

Raper, A.J., Hermes A. Kontos and J.L. Patterson, Jr. Response of pial precapillary vessels to changes in arterial carbon dioxide tension. *Circulation Research*, 28:518, 1971.

Raper, A.J., Hermes A. Kontos, E.P. Wei and J.L. Patterson, Jr. Unresponsiveness of pial precapillary vessels to catecholamines and sympathetic nerve stimulation. *Circulation Research*, 31:257, 1972.

NICHOLAS M. KREDICH, M.D., Associate Professor of Medicine, Assistant Professor of Biochemistry, Duke University Medical Center. 1968-73, Assistant Professor of Medicine, Duke University Medical Center; 1968- , Assistant Professor of Biochemistry; 1969-73, Research Career Development Award; 1974- , Howard Hughes Investigator; 1973- , present rank and institution.

Teaching: Lectures and seminars in biochemistry, genetics, and rheumatic diseases for graduate students, medical students and house officers; thesis advisor for graduate students, research supervisor for postdoctoral fellows, attending rounds in internal medicine and rheumatic diseases.

Administration: Director, Research Training Program for medical students and postdoctoral physicians, 1970- ; Medical School Curriculum Committee, 1970- ; University Long-Range Planning Committee, 1972; Academic Council, 1971-73.

Research: Genetic and biochemical investigations on the control of cysteine biosynthesis in *S. typhimurium;* studies of sulfur metabolism in cultured human cells and investigations on the biochemical defect in cystinosis; investigations of DNA antibodies in patients with systemic lupus erythematosus.

Other: Member: Diabetes and Metabolism Training Grants Committee, National Institute of Arthritis and Metabolic Diseases, 1971-73.

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Selected publications:

Kredich, Nicholas M. Regulation of L-cysteine biosynthesis in *Salmonella typhimurium*. I. Effects of growth on varying sulfur sources and O-acetyl-L-serine on gene expression. *Journal of Biological Chemistry*, 246:3474-3484, 1971.

_____ and M.A. Becker. Synthesis of L-cysteine in *Salmonella typhimurium*. *Methods in Enzymology*, Volume 17B, C.H. Tabor and H. Tabor, Eds. New York: Academic Press, 1971.

_____, M.A. Becker and G. M. Tomkins. Purification and characterization of cysteine synthetase, a bifunctional protein complex from *Salmonella typhimurium*. *Journal of Biological Chemistry*, 244:2428-2439, 1969.

_____, L.J. Foote and B. N. Keenan. The stoichiometry and kinetics of the inducible cysteine desulfhydrase from *Salmonella typhimurium*. *Journal of Biological Chemistry*, 248:6187-6196, 1973.

_____, B.N. Keenan and L.J. Foote. The purification and subunit structure of cysteine desulfhydrase from *Salmonella typhimurium*. *Journal of Biological Chemistry*, 247:7157-7162, 1972.

_____, J.S. Skyler and L.J. Foote. The rapid and quantitative determination of antibodies to native DNA in systemic lupus erythematosus. *Archives of Internal Medicine*, 131:639-644, 1973.

Becker, M.A., Nicholas M. Kredich and G.M. Tomkins. The purification and characterization of O-acetylserine sulfhydrylase-A from *Salmonella typhimurium*. *Journal of Biological Chemistry*, 244:2418-2427, 1969.

Hulanicka, M.D., Nicholas M. Kredich and D.M. Treiman. The structural gene for O-acetylserine sulfhydrylase-A in *Salmonella typhimurium*. Identity with the *trz* A locus. *Journal of Biological Chemistry*, 249:867-872, 1974.

Tomkins, G.M. and Nicholas M. Kredich. Genetic control of protein structure and the regulation of protein synthesis. *Protein Biosynthesis Part A*, C.R. Anfinsen, Ed. New York: Academic Press, 1970.

RAPHAEL H. LEVEY, M.D., Associate Professor of Surgery, Harvard Medical School, Boston, Massachusetts, Associate Surgeon, Children's Hospital Medical Center, Boston, and Chief, Transplantation Unit, Children's Hospital Medical Center. 1969-72, Faculty Research Associate, American Cancer Society; 1970-73, Assistant Professor of Surgery, Harvard Medical School; 1973- , Associate Professor of Surgery.

Teaching: Courses in immunology and surgery for medical students and doctoral students.

Administration: Member: Division of Medical Sciences,

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Harvard Medical School For Teaching of Doctoral and Post-Doctoral Students, 1969- ; Transplantation and Immunology Advisory Committee, National Institutes of Allergy and Infectious Disease, 1969-73; Alumni Council, Princeton University, 1970-75; Advisory Council, Department of Biology, Princeton University, 1970- .

Research. Research centered on lymphocyte physiology, the role of the lymphocyte in transplantation immunity as it relates to graft rejection and to the induction of immunological tolerance; studies also on the role of the thymus in the immunoconversion of putative stem cells; active program in newer techniques of immunosuppression especially with the use of antilymphocyte serum in renal transplant recipients, bone marrow transplantation recipients, and in the treatment of autoimmune diseases; studies involved in detailed evaluation of lymphocyte kinetics in man, using latest technology.

Selected publications:

Levey, Raphael H. A comparison of the models of immunological tolerance and enhancement. *Transplantation Proceedings*, 4:543, 1972.

_____. Lymphocyte ecology and immunological tolerance. *Transplantation Proceedings*, 5:893, 1973.

_____. Lymphocyte environment and the durability of transplantation tolerance. *Transplantation Proceedings*, 4:395, 1972.

_____. The problems and practice of bone marrow transplantation in man: the severe combined immunodeficiency syndrome as the ideal model. *Transplantation Proceedings*, 4:565, 1972.

_____ and R. Burleson. Studies on the isolation of lymphocytes active in cell-mediated immune responses. I. Demonstration of an active population of thymus derived cells in mouse bone marrow. *Cellular Immunology*, 4:305, 1972.

_____ and R. Burleson. Studies on the isolation of lymphocytes active in cell-mediated immune responses. II. The recognition, depletion and restitution of an active population in the mouse thymus. *Cellular Immunology*, 4:316, 1972.

_____, M.R. Klemperer, E.I. Gelfand, A. Sanderson, J.R. Batchelor and F.S. Rosen. Bone marrow transplantation in the severe combined immunodeficiency syndrome. *The Lancet*, II:571, 1971.

Berke, G. and Raphael H. Levey. Cellular immunoabsorbents. Specific in vitro depletion and recovery of mouse lymphoid cells sensitized against allogenic tumors. *Journal of Experimental Medicine*, 135:972, 1972.

Burleson, R. and Raphael H. Levey. Demonstration of thymic function in vitro. *Transplantation Proceedings*, 3:918, 1971.

Burleson, R. and Raphael H. Levey. Studies on the isolation of lymphocytes active in cell-mediated immune responses. III. The pattern of recovery of immunocompetence by various lymphoid cell populations following cessation of chronic administration of antilymphocyte serum. *Cellular Immunology*, 4:333, 1972.

JOHN N. LUKENS, M.D., Professor of Pediatrics, Charles R. Drew Postgraduate Medical School and University of California, Los Angeles. 1969-70, Assistant Professor of Pediatrics, University of Missouri School of Medicine; 1970-71, Associate Professor of Pediatrics; 1971-73, Associate Professor of Pediatrics, Tufts University School of Medicine; 1973- , present rank and institutions.

Teaching: Lectures, seminars and rounds in pediatrics and in hematology for pediatric residents and students; preceptor for course in physical diagnosis for medical students; instructor in clinical and research hematology for postgraduate fellows; participant in postgraduate educational programs.

Administration. Director, pediatric curriculum for medical students, 1969-71; Chairman, course on medical perspectives for first year medical students, 1970-71; Director, Pediatric Residency Program; Director, Pediatric In-Patient services; Director, Fellowship Program in Pediatric Hematology; Chairman, Charles R. Drew Screening Committee for Johnson Foundation Health Policy Fellowship; Chairman, Transfusion Committee.

Research: Primary research activities have related to iron metabolism and to control mechanisms for red blood cell production. Both interests have been used to characterize abnormal erythroid homostasis in inflammatory states. At present, research efforts are focused on selected aspects of sickle cell anemia: the determinants of irreversible injury to red blood cell membranes; the genetic basis for clinically mild disease; and the clinical significance of defective alternate pathway activity for complement activation in sickle cell anemia.

Other: Editorial Board, *American Journal of Diseases of Children;* Children's Cancer Study Group A; SAMA Award, Excellence in Teaching, 1969; Best Teacher Award, 1972.

Selected publications:

Lukens, John. Control of erythropoiesis in rats with adjuvant induced chronic inflammation. *Blood*, 41:37-44, 1973.

_____. Eosinophilia in children. *Pediatric Clinics of North America*, 19:969-981, 1972.

_____. Hemoglobin S, the pneumococcus, and the spleen. *American Journal of Diseases of Children*, 123:6-7, 1972.

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_____. Hemolytic disease, anemia, and hemorrhagic disorders. *Guide to the Practice of Newborn Medicine*, G. Van Leeuwen, Ed. Chicago: Year Book Publishers, 1973.

_____. Hemolytic disease of the newborn (erythroblastosis fetalis). Leukopenia, neutropenia, and agranulocytosis. *Current Pediatric Therapy*, Sixth Edition, S. S. Gellis and B. M. Kagan, Eds. Philadelphia: W. B. Saunders Co., 1973.

_____. Vitamin K and the older infant. *American Journal of Diseases of Children*, 124:639-640, 1972.

_____ and L. A. Neuman. Excretion and distribution of iron during chronic deferoxamine therapy. *Blood*, 38:614-622, 1971.

Bromberg, P. A., W. N. Jensen, John Lukens, L. H. Brubaker and C. E. Mengel. Hemolytic anemia III. Hemoglobin and its abnormalities. *Hematology: Principles and Practice*, C. E. Mengel, E. Frei and R. Nachman, Eds. Chicago: Year Book Medical Publishers, 1972.

Hyatt, R. W., E. R. Adelstein, J. F. Halazun and John Lukens. Ultrastructure of the lung in idiopathic pulmonary hemosiderosis. *American Journal of Medicine*, 52:822-829, 1972.

Roloff, J. S. and John Lukens. Dissociation of erythroblastic and myeloblastic proliferation in erythroleukemia. *American Journal of Diseases of Children*, 123:11-13, 1972.

G. ROBERT MASON, M.D., Ph.D., Professor and Chairman, Department of Surgery, University of Maryland. 1954-56, Teaching Assistant in Pathology, University of Chicago; 1960-62, Teaching Assistant in Physiology, Stanford University; 1965-66, Acting Instructor in Surgery; 1966-67, Instructor in Surgery; 1967-70, Assistant Professor of Surgery; 1970-71, Associate Professor of Surgery; 1971- , Professor of Physiology, University of Maryland; 1971- , present rank and institution.

Teaching: Lectures and seminars in surgery for third and fourth year students. Lectures and seminars in gastrointestinal physiology for first and second year students. Routine rounds and patient care in general surgery for medical students and house officers. Continuing education program at this institution and various hospitals for possible graduate education in various areas of physiology, thoracic, and general surgery. Development of syllabus for divisions of the Department of Surgery with expectation of development of accompanying audio-visual aids.

Administration: Stanford University: Dean's Search; Admissions Committee; Budget Committee; Chairman, Audio-Visual Committee; Curriculum Committee; Chairman, Surgical Curriculum. University of Mary-

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land: Dean's Search; Chairman, Hospital Director Search; Chairman, Anatomy Department Search; Chairman, Neurosurgery Division Head Search; Chairman, Preventive Medicine Department Search; Space Advisory Committee; Chairman, Cancer Center Committee.

Research: Gastrointestinal physiology, autonomic control of gastrointestinal motility and secretion. Effects of substances such as cyclic AMP and various hormones on gastric secretion.

Other: Advisory Committee on Emergency Medical Services of the Department of Health and Mental Hygiene, State of Maryland. Member, Board of Directors, Regional Planning Council Emergency Medical Services Development Corporation; Council, Maryland Chapter, American College of Surgeons. Consultant: Baltimore Veterans Administration Hospital; Mercy Hospital, Baltimore; Maryland General Hospital, Baltimore; Memorial Hospital, Easton, Maryland; South Baltimore General Hospital.

Selected publications:

Mason, G. Robert. Hypothalamic coupling of gastric secretory and motor function. *Ph.D. thesis in Physiology*, Stanford University, 1968.

_____. Surgical residencies past, present, and future. *University of Maryland School Medical Bulletin*, 57:2, 1974.

_____, E. H. Eigenbrodt and H. A. Oberhelman, Jr. The role of intrinsic neural plexuses in release of gastric antral gastrin. *Archives of Surgery*, 90:895-898, 1965.

_____, J. M. Guernsey, G. E. Hanks and T. S. Nelsen. Surgical therapy for radiation enteritis. *Oncology*, 22:251-257, 1968.

_____ and T. S. Nelsen. Gastric secretory and motor responses to anterior hypothalamic stimulation. *American Journal of Physiology*, 217:1771-1776, 1969.

_____ and T. S. Nelsen. Hypothalamic stimulation and gastric secretion in the dog. *American Journal of Physiology*, 213:21-24, 1967.

_____, W. Northway and R. B. Cohn. Difficulties in the operative diagnosis of congenital atresia of the biliary ductal system. *American Journal of Surgery*, 112:183-187, 1966.

Attar, S., J. Hankins, S. Turney, G. Robert Mason, R. Ramirez and J. McLaughlin. Tracheal obstruction. *Annals of Thoracic Surgery*, 16:555, 1973.

Beck, C. S. and G. Robert Mason. Gastric peristalsis: a study of regional rates of contraction. *American Journal of Surgery*, 119:217-220, 1970.

Smith, A. T., G. Robert Mason and H. A. Oberhelman, Jr. The acute local effects of prednisone on the gastric mucosa. *American Journal of Digestive Diseases*, 13:79-85, 1968.

KARL H. MUENCH, M.D., Professor of Medicine and Associate Professor of Biochemistry, University of Miami School of Medicine. 1969-73, Associate Professor of Medicine and Biochemistry; 1973- , present rank and institution.

Teaching: Lectures to first year medical students on purine and pyrimidine metabolism, nucleic acid metabolism, the genetic code, and protein synthesis. Lectures and seminars to graduate students, medical students, and house officers on biochemical genetics and related clinical disorders. Instruction of second year medical students in patient history-taking and physical diagnosis. Attending physician in general medicine. Ph.D. Thesis Advisor for five biochemistry graduate students earning degrees in 1969, 1970, 1973 and 1974. Member of numerous other Ph.D. dissertation committees.

Administration: Chief, Division of Genetic Medicine, 1968- ; Admissions Director, Ph.D.-M.D. Program, 1971-72; Director, Ph.D.-M.D. Program, 1972-73; medical Curriculum Committee, Department of Biochemistry, 1973- ; House Staff Program for Latin American Physicians, Department of Medicine, 1973- .

Research: Purification, structure and function of tRNA. Quaternary structure and substrate binding of aminoacyl-tRNA synthetases. Characterization of tryptophanyl-tRNA synthetases of Escherichia coli and of human placenta and chronic lymphocytic leukemic lymphocytes, including primary sequence determination of thiol peptides.

Other: Leukemia Society of America Scholar, 1971- ; Research Career Development Awardee, 1971- ; Editorial Board, *Year Book of Cancer*.

Selected publications:

Muench, Karl H. Chloroquine and synthesis of aminoacyl transfer ribonucleic acids. Conformational changes in tryptophanyl and tryptophan transfer ribonucleic acids. *Biochemistry*, 8:4880-4888, 1969.

_____. Chloroquine and synthesis of aminoacyl transfer ribonucleic acids. Tryptophanyl transfer ribonucleic acid synthetase of *Escherichia coli* and tryptophanyladenosine triphosphate formation. *Biochemistry*, 8:4872-4879, 1969.

_____. Fractionation of transfer ribonucleic acids on hydroxylapatite columns. *Procedures in Nucleic Acid Research*, G.L. Cantoni and D.R. Davies, Eds. New York: Harper & Row, 1971.

_____. Preparation of aminoacyl transfer ribonucleic acid synthetases from *Escherichia coli*. *Methods in Molecular Biology*, J. Last and A.I. Laskin, Eds. New York: Marcel Dekker, 1971.

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_____, W.M. Awad, Jr. and W.J. Whelan. The experimental M.D. program for Ph.D.s: an evaluation at the three-year mark. *Journal of Medical Education*, July, 1974.

Joseph, D.R. and Karl H. Muench. Tryptophanyl transfer ribonucleic acid synthetase of *Escherichia coli*. I. Purification of the enzyme and of tryptophan transfer ribonucleic acid. *Journal of Biological Chemistry*, 246:7602-7609, 1971.

Joseph, D.R. and Karl H. Muench. Tryptophanyl transfer ribonucleic acid synthetase of *Escherichia coli*. II. Molecular weight, subunit structure, sulfhydryl content, and substrate binding properties. *Journal of Biological Chemistry*, 246:7610-7615, 1971.

Penneys, N.S. and Karl H. Muench. Human placental tryptophanyl transfer ribonucleic acid synthetase. Purification and subunit structure. *Biochemistry*, 13:560-565, 1974.

Penneys, N.S. and Karl H. Muench. Human tryptophanyl transfer ribonucleic acid synthetase. Comparison of the kinetic mechanism to that of the *Escherichia coli* tryptophanyl transfer ribonucleic acid synthetase. *Biochemistry*, 13:566-571, 1974.

Tchou, H.P., A.J. Claflin and Karl H. Muench. Tryptophanyl transfer ribonucleic acid synthetase from lymphocytes of human chronic lymphocytic leukemia. *Cancer Research*, 31:679-683, 1971.

CHARLES J. NABORS, JR., Ph.D., Assistant Professor, Department of Anatomy and Head, Biochemistry Group, Radiobiology Division, University of Utah, 1965-67, Instructor, Department of Anatomy, University of Utah; 1967–, Assistant Professor, Department of Anatomy; 1970–, present rank and institution.

Teaching: Lectures in histology and laboratory instruction for medical students. Summer research projects for medical students. Lectures, seminars and laboratory teaching for doctoral students and postdoctoral fellows. Participation in improving the medical histology curriculum.

Administration: Regional Advisory Group, Intermountain Regional Medical Program, 1969-70; Admissions Committee, College of Medicine, 1969-70; Affirmative Action and Minority Faculty Recruitment Committee, 1969–; Research Committee, University of Utah, 1974–.

Research: Research efforts are centered on hormonal control of cellular function and responses to internally deposited radionuclides. Projects dealing with wound healing and burn treatment, radioimmunoassay of steroid hormones and biochemical effects of internally deposited radionuclides.

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Other: Director, Biochemistry Group, University of Utah Radiobiology Laboratory, 1969– ; Honors Commencement Address, University of Utah, 1970; Consultant Division of Plastic Surgery, Veterans Administration Hospital, Salt Lake City, 1973; Consultant, Basic Science Enrichment Program, University of New Mexico, College of Medicine, 1974: Trustee, Alberta Henry Educational Foundation, 1969–; Chairman, Utah Citizens for McGovern, 1972; Vestry member, St. James Episcopal Church, 1973–.

Selected publications:

Nabors, Charles J., Jr. The fibroblast cell cycle. *GAP Conference on Amino Acid Metabolism and Cystic Fibrosis.* National Cystic Fibrosis Foundation, Palm Beach, Florida, 1971.

_____. Tumor incidence and biochemical changes in male and female animals. *Fundamental Nuclear Energy Research.* A.E.C. Report to Congress, 1972.

_____ and D.L. Berliner. Corticosteroid metabolism during wound healing. *Journal of Investigative Dermatology,* 52:465-473, 1969.

_____ and J.S. Hinckley. Cortisol metabolism in skin of beagles bearing ^{241}Am: a possible pre-neoplastic change in steroid metabolism. *Radiation Research,* 1974.

_____, W. Stevens and R.E. Maxwell. Comparative effects of ^{239}Pu and ^{241}Am on biochemical parameter: effects of dose and radionuclide burden time. *Radiobiology of Plutonium,* B.J. Stover and W.S.S. Jee, Eds. Salt Lake City: J.W. Press, 1972.

_____, C.D. West, D.K. Mahajan and F.H. Tyler. Radioimmunoassay of human plasma corticosterone: method, measurement of episodic secretion and adrenal suppression and stimulation. *Steroids,* 23:363-378, 1974.

Berliner, D.L., W. Stevens and Charles J. Nabors, Jr. Biochemical effects of internally deposited radionuclides. Symposium on *Delayed Effects of Bone-Seeking Radionuclides,* C.W. Mays, W.S.S. Jee and R. Lloyd, Eds. University of Utah Press, 1969.

West, C.D., D.K. Mahajan, V.C. Chavre, Charles J. Nabors, Jr. and F.H. Tyler. Simultaneous measurement of multiple plasma steroids by radioimmunoassay demonstrating episodic secretion. *Journal of Clinical Endocrinology,* 36:1230-1236, 1973.

JOHN E. REMMERS, M.D., Associate Professor of Medicine and Physiology, University of Texas Medical Branch at Galveston. 1969-72, Assistant Professor of Physiology, Dartmouth Medical School; 1972-73, Visiting Scientist, Nobel Institute for Neurophysiology, Karolinska Institute; 1974, Associate Professor of Physiology, Dartmouth Medical School; 1974–, present rank and institution.

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Teaching: Lectures and conferences on cardiovascular and respiratory physiology and pathophysiology. Seminars in respiratory physiology for graduate students. Lectures in environmental physiology and neurobiology for undergraduates.

Administration: Admissions Committee, 1969-72; Chairman, Committee on Equal Opportunity, 1970-72; Director, Indian Program, 1970-72; Graduate Education Committee, 1970-72; Curriculum Committee, 1973-74.

Research: Research activities have related to the control of respiration in normal animals. Neural factors, both reflex and central, that regulate the motor act of breathing have been elucidated.

Other: Recipient of a Research Career Development Award.

Selected publications:

Remmers, John E. Extra-segmental reflexes derived from intercostal afferents: phrenic and recurrent laryngeal responses. *Journal of Physiology*, 233:45-62, 1973.

_____. Inhibition of inspiratory activity by intercostal muscle afferents. *Respiration Physiology*, 10:358-383, 1970.

_____ and H. Gautier. Neural and mechanical mechanisms of feline purring. *Respiration Physiology*, 16:351-361, 1972.

_____ and W.G. Tsiaras. Effect of lateral cervical cord lesions on the respiratory rhythm of anesthetized, vagotomized cats. *Journal of Physiology*, 233:63-74, 1973.

Bartlett, D., Jr. and John E. Remmers. Effects of high altitude exposure on the lungs of young rats. *Respiration Physiology*, 13:116-125, 1971.

Bartlett, D., Jr., John E. Remmers and H. Gautier. Laryngeal regulation of respiratory airflow. *Respiration Physiology*, 18:205-221, 1973.

Gautier, H., John E. Remmers and D. Bartlett, Jr. Control of the duration of expiration. *Respiration Physiology*, 18:194-204, 1973.

Mithoefer, J.D., John E. Remmers, G. Zubieta and M.C. Mithoefer. Pulmonary gas exchange in Andean natives at high altitude. *Respiration Physiology*, 15:182-189, 1972.

RICHARD E. RIESELBACH, M.D., Professor and Associate Chairman, Department of Medicine, University of Wisconsin Center for Health Sciences and Physician-in-Chief, Department of Medicine, Mount Sinai Medical Center; Coordinator for Academic Affairs, University of Wisconsin Affiliation at Mount Sinai in Milwaukee. 1969-73, Associate Professor of Medicine; 1973–, present rank.

Teaching: Lectures and seminars in renal physiology and clinical nephrology for medical students, house staff and fellows. Attending rounds on clinical nephrology service and postgraduate education in clinical nephrology.

Administration: President, Kidney Foundation of Wisconsin, 1969-70; Director, University of Wisconsin Nephrology Training Program, 1969-74; Principal Investigator, University of Wisconsin Program Project Grant in Nephrology and Director, Nephrology Group, 1971-74.

Research: Renal pathophysiology. Major research interest in this area has involved functional characterization of experimentally diseased kidneys in animal models and of the chronically diseased kidney in man. Also, have carried out in-depth studies of function of the remaining normal, hypertrophied kidney of transplant donors. In addition, have studied the mechanism of renal urate excretion in man and attempted to determine the nature of defective renal urate elimination in some patients with gout.

Other: Editorial Board, *Nephron*; Medical and Scientific Committee, Kidney Foundation of Wisconsin; Co-Director, Comprehensive Renal Program of Wisconsin Regional Medical Program.

Selected publications:

Rieselbach, Richard E., L.B. Sorensen, W.D. Shelp and T.H. Steele. Diminished renal urate secretion per nephron as a basis for primary gout. *Annals of Internal Medicine*, 73:359, 1970.

_____ and T.H. Steele. Influence of the kidney upon urate homeostasis in health and disease. *American Journal of Medicine*, 56:665, 1974.

Boner, G., M. Newton and Richard E. Rieselbach. Exaggerated carbohydrate-induced calciuria in the remaining kidney of transplant donors. *Kidney International*, 3:24, 1973.

Boner, G., W.D. Shelp, M. Newton and Richard E. Rieselbach. Factors influencing the increase in glomerular filtration rate in the remaining kidney of transplant donors. *American Journal of Medicine*, 55:169, 1973.

Gutmann, F.D. and Richard E. Rieselbach. Altered effect of furosemide upon the unilateral experimentally diseased dog kidney. *Journal of Laboratory and Clinical Medicine*, 44:14, 1971.

Gutmann, F.D. and Richard E. Rieselbach. Disproportionate inhibition of sodium reabsorption in the unilaterally diseased kidney of dog and man following an acute saline load. *Journal of Clinical Investigation*, 50:422, 1971.

Harrington, A.R. and Richard E. Rieselbach. The capacity for sodium conservation in rats with a reduced medullary osmotic gradient due to hereditary hypothalamic diabetes insipidus. *American Journal of Physiology*, 219:384, 1970.

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Shelp, W.D., J.M.B. Bloodworth, Jr. and Richard E. Rieselbach. Serial observations of renal histology and function of lupus nephritis patients receiving azathioprine. *Archives of Internal Medicine*, 128:566, 1971.

Shelp, W.D. and Richard E. Rieselbach. The effect of furosemide on residual nephrons of the chronically diseased kidney in man. *Nephron*, 8:427, 1971.

Zimmerman, S.W., T.L. Goodfriend and Richard E. Rieselbach. Renin release by diseased and contralateral normal dog kidneys following extracellular fluid volume expansion and furosemide. *Nephron*, 10:292, 1973.

RICHARD L. SIMMONS, M.D., Professor of Surgery and Microbiology, University of Minnesota. 1964-65, Assistant in Surgery, Columbia University; 1966-68, Instructor in Surgery, Columbia University; 1968-70, Assistant Professor of Surgery and Microbiology, University of Minnesota; 1970-72, Associate Professor of Surgery and Microbiology; 1973– , present rank and institution.

Teaching: Lectures and seminars in cellular immunology, tumor immunology, and clinical transplantation for medical students, house officers and physicians. General surgical lectures, conferences, ward and operating room teaching with house staff and medical students.

Administration: Hospital Infections Committee, 1971– ; Disaster Committee, 1969– ; Intern Advisory Committee, 1971– ; Clinical Research Center Protocol Committee, 1969– ; Research and Residency Committee, 1973; Associate Director, Clinical Transplantation, University of Minnesota, 1968– ; Director, Transplantation Service, Minneapolis Veterans Administration Hospital, 1971.

Research: Clinical research is carried out on a day-to-day basis primarily on renal transplant and tumor immunotherapy patients. Laboratory research in immunology, especially tumor immunology, is based on attempts to modify cell surfaces so that the immunogenicity of the cell is increased. Cells with increased immunogenicity are useful for the development of vaccines against cancer. Cells or organs with diminished immunogenicity may allow transplantation with lessened rejection.

Other: Editorial Board, *Transplantation*, 1969– ; Immunobiology Study Section (NIH), 1973– ; Tumor Immunology Contract Review Group (NIH), 1972-73; International Registry of Tumor Immunotherapy (NIH), 1972– ; ACS/NIH Organ Transplant Registry Advisory Committee, 1970– ; Veterans Administration Surgical Merit Review Board, 1972– ; Kidney Foundation of the Upper Midwest, Scientific Advisory Board, 1969– , Board of Directors, 1971– , President, 1971-73; Subcommittee on Hemodialysis and Transplantation, Minnesota

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State Medical Association, 1970- ; Executive Committee, Council on Dialysis and Transplantation, National Kidney Foundation, 1973- ; Councilman-at-Large, Society of University Surgeons, 1973- ; Board of Scientific Consultants, Philadelphia Children's Hospital, 1974- .

Selected publications:

Simmons, Richard L., R. Condie and J.S. Najarian. Antilymphoblast globulin for renal allograft prolongation. *Transplantation Proceedings*, 4:487-490, 1972.

_____, J.E. Foker and J.S. Najarian. Principles of immunosuppression. *Textbook of Surgery*, D.C. Sabiston, Jr., Ed. Philadelphia: W.B. Saunders, 1972.

_____, J.E. Foker, R.R. Lower and J.S. Najarian. Transplantation. *Principles of Surgery*, S.I. Schwartz, R.C. Lillehei, G.T. Shires, F.C. Spencer and E.H. Storer, Eds. New York: McGraw-Hill Book Company, 1974.

_____ and A. Rios. Differential effects of neuraminidase on the immunogenicity of viral associated and private antigens of mammary carcinomas. *Journal of Immunology*, 111:1820-1825, 1973.

_____ and A. Rios. Immunotherapy of cancer: immunospecific rejection of tumors in recipients of neuraminidase-treated tumor cells plus BCG. *Science*, 174:591-593, 1971.

_____ and A. Rios. Neuraminidase treated cells and their role in cancer immunotherapy. *Enzyme Therapy in Genetic Diseases, Birth Defects: Original Article Series*, R.J. Desnick, R. Bernlohr and W. Krivit, Eds. New York: National Foundation, 1973.

_____, A. Rios and J.H. Kersey. Regression of spontaneous mammary carcinomas using direct injections of neuraminidase and BCG. *Journal of Surgical Research*, 12:57-61, 1972.

_____, A. Rios and P.K. Ray. Regression of established methylcholanthrene tumors by intratumor injections of Vibrio cholerae neuraminidase. *Journal of Surgical Oncology*, 4:298-305, 1972.

_____, V.M. Uranga, E.S. LaPlante, T.J. Buselmeier, C.M. Kjellstrand and J.S. Najarian. Pulmonary complications in transplant recipients. *Archives of Surgery*, 105:260-268, 1972.

Najarian, J.S. and Richard L. Simmons, Eds. *Transplantation*. Philadelphia: Lea & Febiger, 1972.

DAVID B. SKINNER, M.D., Dallas B. Phemister Professor of Surgery and Chairman, Department of Surgery, The University of Chicago, Pritzker School of Medicine. 1968-70, Assistant Professor of Surgery, The Johns Hopkins University School of Medicine; 1970-72, Associate Professor of Surgery; 1972- , Professor of Surgery; 1972-, present rank and institution.

Teaching: General and thoracic surgery for third and fourth year medical students, interns, and residents. Gastrointestinal physiology for first and second year medical students. Research advisor for medical students and residents. Conduct weekly Grand Rounds and Mortality and Morbidity Conferences for Department of Surgery. Weekly case presentation conference for medical students.

Administration: Chairman, Department of Surgery; Director, General Surgery and Thoracic and Cardiovascular Surgery Residency Programs, 1972- ; Executive Committee, Medical School, 1972- ; Search Committees for: President, The Johns Hopkins University, 1971; Dean, Division of Biological Sciences, The University of Chicago, 1973; Chairman, Departments of Radiology and Anesthesiology; Chairman, Sections of Orthopedic Surgery, Pediatric Surgery, Plastic Surgery, and Urology. Admissions Committee, 1968-71; Medical Records Committee, 1971-72; Co-director, Academic Surgery Training Grant, 1968-72; House Staff Policy Committee, 1971-72.

Research: Investigations of regional blood flow and its alteration by pharmacological agents and mechanical circulatory assistance devices. Development and refinement of circulatory assistance devices. Experimental studies of revascularization of ischemic myocardium and intestine. Experimental and clinical studies of esophageal and gastric function with special interest in the gastroesophageal junction. Clinical studies of evaluation and treatment for pulmonary and esophageal cancer.

Other: Assistant Editor, 1968-72 and Editor, 1972- , *Journal of Surgical Research*; Editor, *Current Topics in Surgical Research*, 1969-71; Chairman, Committee on Standards and Specifications for Medical Devices, American Society for Artificial Internal Organs, 1971- ; Vice Chairman, Markle Scholars Constitutional Committee which lead to Fellowships in Health Policy Programs; Edward D. Churchill Lecturer for Excelsior Surgical Society, 1973; election to a number of surgical and scientific societies including the American Surgical Association; other named or invited lectureships, and several visiting professorships.

Selected publications:

Skinner, David B. The esophagus. *Pathologic Physiology*, Fifth Edition, W.A. Sodeman and W.A. Sodeman, Jr., Eds. Philadelphia: W.B. Saunders Company, 1973.

_____ The importance of the anatomical configuration of the cardia in preventing gastroesophageal reflux. *Controversy in Internal Medicine II*, F.J. Ingelfinger, M. Finland, A.S. Relman and R. Ebert, Eds. Philadelphia: W.B. Saunders Company, 1973.

Anderson, W.J., David B. Skinner, G.D. Zuidema and J.L. Anderson. Chronic pancreatic pleural effusions. *Surgery, Gynecology and Obstetrics*, 137:827, 1973.

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Feigin, D.S., A.E. James, Jr., F.P. Stitik, M.W. Donner and David B. Skinner. The radiological appearances of hiatal hernia repairs. *Radiology*, 110:71, 1974.

Jones, E.L., David B. Skinner, T.R. DeMeester, R.C. Elkins and G.D. Zuidema. Response of the interposed human colonic segment to an acid challenge. *Annals of Surgery*, 117:75, 1973.

Mazur, J.M., David B. Skinner, E.L. Jones and G.D. Zuidema. Effect of transabdominal vagotomy on the human gastroesophageal high-pressure zone. *Surgery*, 73:818, 1973.

Moossa, A.R., G.R. Cooley and David B. Skinner. Intraluminal and intraperitoneal pressures at the cardia: effect of hormones and surgical intervention. *Surgical Forum*, 24:370, 1973.

Zarins, C.K. and David B. Skinner. Circulation in profound hypothermia. *Journal of Surgical Research*, 14:97, 1973.

Zarins, C.K., David B. Skinner, B.A. Rhodes and A.E. James, Jr. Hyperemia as a measure of viability in revascularized ischemic intestine. *Surgical Forum*, 24:416, 1973.

Zarins, C.K., David B. Skinner, B.A. Rhodes and A.E. James, Jr. Prediction of the viability of revascularized intestine with radioactive microspheres. *Surgery, Gynecology and Obstetrics*, 138:576, 1974.

J. WAYNE STREILEIN, M.D., Professor and Associate Director, Department of Cell Biology and Associate Professor of Medicine, Southwestern Medical School, University of Texas Health Science Center at Dallas, 1968-71, Associate Professor of Medical Genetics and Assistant Professor of Medicine, University of Pennsylvania School of Medicine; 1971-, present rank and institution.

Teaching: Southwestern Medical School: Course director and lecturer, human genetics; lectures in immunology and cell biology; attending rounds in medicine; consultative rounds in hematology for house staff and fellows; training of graduate students in immunology. University of Pennsylvania: Lectures in medical genetics, immunology and immunopathology.

Administration: Southwestern Medical School, 1971- : Associate Director, Department of Cell Biology; Chairman, Faculty Seminar Program; Director, Graduate Program in Immunology; Member: Curriculum, Promotions, Tenure and Student-Faculty Relations Committees. University of Pennsylvania, 1968-71: Member: Admissions Committee; Ad Hoc Committee on Governance.

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Research: Immunobiology and immunopathology with special emphasis on transplantation. Studies on pathogenesis of graft-versus-host disease. Present research is directed at mechanisms of immunoregulation, especially with regard to the role of the spleen.

Other: Editorial Board, *Transplantation*. Member: American Association of Immunologists; The Transplantation Society; American Society for Clinical Research; Experimental Hematology Society.

Selected publications:

Streilein, J.W. An analysis of graft-versus-host disease in Syrian hamsters. IV. Alterations in lymphoid tissues and their relation to the "refractory state." *Journal of Experimental Medicine*, 135:567, 1972.

_____. Bone marrow transplantation: immunologic consideration and current status. *Cancer Chemotherapy II, The Twenty-Second Hahnemann Symposium*, I. Brodsky, S.B. Kahn and J.H. Moyer, Eds. New York: Grune & Stratton Inc., 1972.

_____. A common pathogenesis for the lesions of graft-versus-host disease. *Transplantation Proceedings*, 3:418, 1971.

_____ and R.E. Billingham. An analysis of graft-versus-host disease in Syrian hamsters. I. The epidermolytic syndrome: description and studies on its procurement. *Journal of Experimental Medicine*, 132:163, 1970.

_____ and R.E. Billingham. An analysis of graft-versus-host disease in Syrian hamsters. II. The epidermolytic syndrome: studies on its pathogenesis. *Journal of Experimental Medicine*, 132:181, 1970.

_____ and R.E. Billingham. An analysis of the genetic requirements for delayed cutaneous hypersensitivity reactions to transplantation antigens in mice. *Journal of Experimental Medicine*, 131:409, 1970.

_____ and E.A. Hildreth. Tolerance to bovine gamma globulin in adult guinea pigs. *Journal of Immunology*, 96:1027, 1966.

_____ and M.J. Stone. GVH disease: unmasking of forbidden clones. *Transplantation Proceedings*, 22:39, 1972.

_____ and J.S. Streilein. An analysis of graft-versus-host disease in Syrian hamsters. III. Hematologic manifestations: description and studies on pathogenesis. *Transplantation*, 13:378, 1972.

_____ and J.S. Streilein. Immunologic reactivity to weak transplantation antigens: factors which favor sensitization rather than tolerance. *Journal of the National Cancer Institute*, 51:1589-1595, 1973.

FRANK P. STUART, M.D., Professor of Surgery and Immunology, The University of Chicago. 1966-69, Assistant Professor; 1969-73, Associate Professor; 1973– , present rank and institution.

Teaching: Lectures in surgery and immunology for medical students. Bedside rounds on general surgical and kidney transplant patients with medical students and surgery house staff. Guidance of graduate and postdoctoral students in immunobiology research projects.

Administration: Variety of hospital committees; Dean's Advisory Committee; assorted faculty search committees; head, organ transplantation; head, general surgery service.

Research: Research has focused on understanding the mechanisms of organ graft rejection and the specific suppression of rejection in rats and rabbits.

Other: Editorial Board, *Transplantation*; Associate Editor, *Journal of Surgical Research*; Scientific Advisory Board, Illinois Kidney Foundation.

Selected publications:

Stuart, F.P. Immunological enhancement of transplanted organs. *Immunological Aspects of Transplantation Surgery*, R.Y. Calne, Ed. Medical and Technical Publishing Co., Ltd., 1973.

_____. Transplantation. *Current Problems in Surgery*. Monthly Monograph, Yearbook Medical Publishers, August 1968.

_____, E. Bastien, A. Holter, F.W. Fitch and W.L. Elkins. Role of passenger leukocytes in the rejection of renal allografts. *Transplantation Proceedings*, 3:461, 1971.

_____, F.W. Fitch, D.A. Rowley, J.L. Biesecker, K.E. Hellstrom and I. Hellstrom. Presence of both cell-mediated immunity and serum blocking factors in rat renal allografts "enhanced" by passive immunization. *Transplantation*, 12:331, 1971.

_____, T. Garrick, A. Holter, A. Lynch and E. Bastien. Delayed rejection of renal allografts in the rat and dog by reduction of passenger leukocytes. *Surgery*, 70:128, 1971.

_____, T. Saitoh and F.W. Fitch. Specific immunological suppression of renal allograft rejection. *Science*, 160:1463, 1968.

_____, E.T. Torres, W.J. Hester, G.J. Dammin and F.D. Moore. Orthotopic autotransplantation and allotransplantation of the liver: functional and structural patterns in the dog. *Annals of Surgery*, 165:325, 1967.

_____, E.T. Torres and F.D. Moore. The association of upper gastrointestinal ulceration and orthotopic hepatic allotransplantation in the dog. *Transplantation*, 5:804, 1967.

Biesecker, J.L., F.W. Fitch, D.A. Rowley, D. Scollard and F.P. Stuart. Cellular and humoral immunity after

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allogeneic transplantation in the rat. II. Comparison of a ^{51}Cr release assay and modified microcytotoxicity assay for detection of cellular immunity and blocking serum factors. *Transplantation*, 16:421, 1973.

Holter, A.R., M.R. Neu, T.J. McKearn, A.F. Lynch and F.P. Stuart. Abrogation of hyperacute rejection of renal allografts by pepsin digest fragments of antidonor antibody. *Transplantation Proceedings*, 5:593, 1973.

ROGER S. TONKIN, M.D., C.M., F.R.C.P. (C), Assistant Professor, Department of Paediatrics, University of British Columbia. 1969– , present rank and institution.

Teaching: Lectures and seminars in health care for children and community medicine for medical students and other health professionals. Development of a teaching program in primary health care for medical students, and a series of slide-tape presentations in the fields of health care and community medicine.

Administration: Executive Director, REACH Centre Association, 1970-74; Head, Department of Paediatrics, St. Paul's Hospital, 1971-72; Medical Director, Health Centre for Children, Outpatient Department, 1972-73.

Research: Research activities have been in the field of health care evaluation and population surveys.

Other: Task Force on Communication Impairments, Department of Health Services and Hospital Insurance, Province of B.C.; Committee on Community Health Centres, Canadian Paediatric Society; Committee on Nurse Practitioners, University of B.C.; Indian Health Committee, B.C. Medical Association; Committee on Communication Impairments, Health Security Program Project; Indian Health Committee, Canadian Paediatric Society; Unmet Needs Committee, Canadian Paediatric Society; Health Committee, Social Planning and Review Council of B.C.

Selected publications:

Tonkin, R.S. Health needs of inner city children. *Ross Conference on Unmet Needs of Canadian Children*. Montebello, May 1973.

_____. Of physicians present and future. *British Columbia Medical Journal*, Vol. 12, No. 7, 1970.

_____. A projection of future needs for hospital beds and ambulatory facilities for children. *British Columbia Medical Journal*, 12:303, 1970.

_____. The REACH Centre—A review of three years' experience. *Canadian Paediatric Society, Forty-ninth Annual Meeting*. Calgary, Alberta, July 15-19, 1972.

_____, S. Israels and C.S. Finch. Community health

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centre survey. *Canadian Paediatric Society, Forty-ninth Annual Meeting*. Calgary, Alberta, July 15-19, 1972.

_____, G.C. Robinson and C.W. Kinnis. Health indices in Indian versus non-Indian families. *Canadian Paediatric Society, Forty-eighth Annual Meeting*. Queen's University, Kingston, Ontario, June 12-16, 1971.

_____, G.C. Robinson and C.W. Kinnis. A study of kindergarten children in three socio-economic areas of British Columbia. *Health Services Reports*, 88:947-956, 1973.

_____, G.C. Robinson, C.P. Shah and C.W. Kinnis. A study of pediatric bed utilization and some implications for regional planning. *British Columbia Medical Journal*, Vol. 13, No. 12, 1971.

Moirs, J.G., A.A. Larsen, R.S. Tonkin and G.A. Willis. A new team approach in developing a comprehensive province-wide poison control program. *Annual Meeting of the American Association of Poison Control Centres*. Chicago, October 1968.

FRANK M. YATSU, M.D., Associate Professor of Neurology, University of California, School of Medicine, San Francisco. 1969-71, Assistant Professor; 1971– , present rank and institution.

Teaching: Lectures and rounds on neurology and neurochemistry for medical students, residents, and postgraduate education.

Administration: Chief, Neurology Service, San Francisco Hospital; Director, Stroke Research Program Project.

Research: Studies assessing energy metabolism, including oxidative phosphorylation and energy charge, and phospholipid metabolism during reversible and irreversible brain ischemia.

Other: Trustee, Brown University; Committee on Medical Education, Brown University; Editorial Board, *Stroke*; Research Committee of the American Heart Association; Examinations Committee, American Board of Neurology and Psychiatry; member of various local and national committees.

Selected publications:

Yatsu, F.M. Biochemistry of cerebral infarction. Metabolic and Deficiency Diseases. *Handbook of Clinical Neurology*, Vol. 31, P.J. Vinken and G.W. Bruyn, Eds. Amsterdam: North-Holland Publishing Company. In press.

_____. Effect on lipid metabolism of reduction of the energy state. *Ninth Princeton Conference on Cerebral Vascular Diseases*. New York: Grune & Stratton, Inc., 1974.

_____. Lipid disorders of the nervous system including atherosclerosis. *Practical Neurochemistry*, M.M. Cohen, Ed. Hagerstown: Hoeber and Company, 1974.

_____. Membrane lipids and brain ischemia. *Current Concepts of Cerebrovascular Diseases–Stroke*, 1974.

_____, P. Lindquist and C. Graziano. An experimental model of brain ischemia combining hypotension and hypoxia. *Stroke*, 5:32-40, 1974.

_____ and S. Moss. Chain elongation of linoleic and linolenic acids by brain mitochondria. *Journal of Neurochemistry*, 19:1813-1815, 1972.

_____, S. Moss, E. Connolly and L. Nelson. Elongation of fatty acids in human brain tissue. *Journal of Neurochemistry*, 20:621-624, 1973.

_____, D.R. Wesson and E.E. Smith. Amphetamine abuse. *Medical Aspects of Drug Abuse*, R.W. Richter, Ed. New York: Harper & Row, 1974.

Lee, L-W and F.M. Yatsu. ATP synthesis by mitochondria of brain synaptosomes. *Journal of Neurochemistry*. In press.

Lee, L-W and F.M. Yatsu. The effect of δ-aminobutyric acid on brain mitochondrial ATP synthesis. *Journal of Neurochemistry*. In press.

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THE TREASURER'S REPORT

SUMMARY

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To continue the practice begun in 1973 of reporting the Foundation's assets in terms of market value rather than book value, the Markle Foundation's Principal Fund at June 30, 1974 was $49,180,687. This represents a decrease in the market value of the Foundation's Principal Fund investments from $59,740,210 at June 30, 1973.

The book value of the Foundation's Principal Fund increased during the year from $34,656,419 to $35,806,596. The accumulated unexpended realized gains since the inception of the Foundation amount to $20,042,622.

Changes in holdings and market values have increased the holdings of bonds, mortgage loan participation, commercial and other notes from 16.1 per cent to 25.2 per cent. The holdings of common stocks have decreased from 83.9 per cent to 74.8 per cent.

The income received for the year ended June 30, 1974 was $1,683,332, an increase of $308,767 from the previous year. Appropriations aggregated $2,029,795. The current return on the market value of the Foundation's assets at June 30, 1974 was 3.42 per cent.

The securities of the Foundation are in the custody of Morgan Guaranty Trust Company of New York, which also gives investment advice and counsel.

THE AUDITOR'S STATEMENT

Board of Directors
The John and Mary R. Markle Foundation:

We have examined the balance sheet of The John and Mary R. Markle Foundation as of June 30, 1974 and the related statement of changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned financial statements present fairly the financial position of The John and Mary R. Markle Foundation as of June 30, 1974 and the changes in its resources for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year. The supplementary data presented in Schedules 1 to 5 have been subjected to the same auditing procedures and, in our opinion, are stated fairly in all material respects when considered in conjunction with the basic financial statements taken as a whole.

Peat, Marwick, Mitchell & Co.

August 7, 1974

70 BALANCE SHEET

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June 30, 1974

EXHIBIT A

ASSETS

Cash	$ 57,995
Investments, at quoted market value (average cost or fair market value at date of gift, $37,847,756)	49,180,687
	$ 49,238,682

LIABILITIES AND FUND BALANCES

Liabilities:		
Unpaid appropriations		2,014,697
Federal excise tax payable (note 2)		80,292
Taxes withheld		4,166
		2,099,155
Fund balances (Exhibit B):		
Principal–expendable:		
Contributions	$ 15,763,974	
Net realized gain on investment transactions	20,042,622	
Net unrealized appreciation on investments	11,332,931	
	47,139,527	
Income	—	
		47,139,527
		$ 49,238,682

See accompanying notes to financial statements on page 73.

STATEMENT OF CHANGES IN FUND BALANCES

Year ended June 30, 1974

EXHIBIT B

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PRINCIPAL FUND

Balance at beginning of year		$ 57,827,919
Addition:		
Net realized gain on investment transactions		2,088,744
		59,916,663
Deductions:		
Allocation to income fund for support of current year's programs	$ 938,567	
Net unrealized depreciation on investments	11,838,569	12,777,136
Balance at end of year		**$ 47,139,527**

See accompanying notes to financial statements on page 73.

Statement of Changes
in Fund Balances, continued:

Year ended June 30, 1974

EXHIBIT B

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INCOME FUND

Income:			
Interest			$ 913,980
Dividends			769,352
			1,683,332
Less investment service fees			93,396
			1,589,936
Expenditures:			
Appropriations approved (net of refunded and cancelled appropriations of $33,802)		$ 2,029,795	
Projects:			
Conferences for Scholars in Academic Medicine		56,511	
Other		58,650	
Administrative and general:			
Compensation and benefits	$ 183,032		
Provision for Federal excise tax	80,000		
Rent	38,834		
Other	81,681	383,547	
			2,528,503
Excess of expenditures over income			(938,567)
Allocation from principal fund for support of current year's programs			938,567
Net change for year			$ — —

See accompanying notes to financial statements on page 73.

NOTES TO FINANCIAL STATEMENTS

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June 30, 1974

(1) The accompanying financial statements have been prepared on the accrual basis of accounting and accordingly reflect all significant receivables and payables, including unpaid appropriations approved by the Board of Directors at the end of the year. The resources of the Foundation are accounted for in two fund groups—principal and income. The principal fund reflects contributions and realized and unrealized net gains on investments. Income from investments, appropriations approved, projects, and administrative and general expenditures are reflected in the income fund. The Foundation allocates gains on investment transactions from the principal fund to the income fund in an amount necessary for support of operations.

The Foundation follows the practice of charging furniture and equipment acquisitions against income. Such acquisitions are not included as fixed assets in the accompanying financial statements.

(2) The Tax Reform Act of 1969 imposes an excise tax on net investment income. Accordingly, the Foundation is liable for Federal excise tax for the year ended June 30, 1974.

(3) The Foundation has a retirement plan under arrangements with Teachers' Insurance and Annuity Association and College Retirement Equities Fund which provides for purchase of annuities for employees. Retirement plan expense for the year was $22,477. Also, the Foundation made additional pension payments of $10,000 to a former employee.

74 SUMMARY OF INVESTMENTS

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June 30, 1974

SCHEDULE 1

	Average cost or fair market value at date of gift	Quoted market value	Percentage of total at market value
Bonds, notes and certificates of deposit:			
Finance—banks	$ 6,200,000	6,192,345	12.6%
Public utility	958,535	649,781	1.3
Industrial and other	5,672,926	5,375,454	10.9
	12,831,461	12,217,580	24.8
Mortgage loan participation	221,813	183,427	.4
Common stocks	24,794,482	36,779,680	74.8
Total	**$ 37,847,756**	**49,180,687**	**100.0%**

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INVESTMENTS

SCHEDULE 2

June 30, 1974

DESCRIPTION	Face amount or number of shares	Average cost or fair market value at date of gift	Quoted market value
Finance—banks:			
Chemical Bank N.Y. 11.05% Jul. 1974	$ 1,000,000	1,000,000	998,920
Continental Illinois National Bank and Trust Co.:			
11½% Sep. 1974	1,500,000	1,500,000	1,497,630
11.8% Sep. 1974	2,000,000	2,000,000	1,998,040
First National Bank of Chicago 11.4% Aug. 1974	1,000,000	1,000,000	999,030
Mellon National Bank:			
11.1% Sep. 1974	200,000	200,000	199,560
11½% Sep. 1974	500,000	500,000	499,165
	$ 6,200,000	**6,200,000**	**6,192,345**
Public utility bonds:			
American Telephone and Telegraph Co.			
2¾% 1975	75,000	75,068	70,500
Buffalo Niagara Electric Corp. 1st 2¾% 1975	100,000	100,938	91,750
Florida Power & Light Co. 1st 4⅜% 1986	100,000	100,000	63,625
Pacific Gas and Electric Co. 1st and ref. 3% 1979	200,000	208,816	151,000
Pennsylvania Electric Co. 1st 3⅞% 1986	200,000	203,713	119,000
United Utilities Inc. S.F. deb. 4¾% 1989	270,000	270,000	153,906
	$ 945,000	**958,535**	**649,781**
Industrial and other bonds:			
Aluminum Co. of America 9% May 15, 1995	400,000	397,000	390,000
Atlantic Richfield Co. undivided interest in demand note	738,000	738,000	738,000
Ford Motor Company notes 7.4% 1980	1,000,000	956,400	940,000
Four Corners Pipe Line Co. 5% 1982	61,000	61,000	51,545
General Electric Co. undivided interest in demand note	22,000	22,000	22,000
General Electric Credit Corp. promissory notes 5% 1975	225,000	225,000	214,875
GTE Sylvania Inc. undivided interest in demand note	703,000	703,000	703,000
B. F. Goodrich Co. notes 3¼% 1977	82,211	82,211	69,673
Great Canadian Oil Sands Limited notes 5¾% 1991	440,000	440,000	337,700
International Bank for Reconstruction and Development 8⅜% 1995	200,000	200,000	197,000
International Harvester Credit Corp. undivided interest in demand note	123,000	123,000	123,000

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DESCRIPTION		Face amount or number of shares	Average cost or fair market value at date of gift	Quoted market value
Monsanto Co. 9⅛% 2000	$	400,000	397,000	396,000
P.P.G. Industries, Inc. 9% 1995		400,000	398,000	388,000
Plychamp Corp. notes 7⅛% 1989		431,424	431,424	351,611
Roman Catholic Bishop of Miami, Florida direct obligation notes 5% 1976		300,000	300,655	277,050
Sears, Roebuck Acceptance Corp. sub. deb. 4⅜% 1977		200,000	198,236	176,000
	$	**5,725,635**	**5,672,926**	**5,375,454**
Mortgage loan participation:				
F.H.A. Insured Mortgage of Abilene AFB Housing No. 2 Inc. 4% 1982	**$**	**220,334**	**221,813**	**183,427**
Common stocks:				
Alcon Laboratories	Shs.	4,500	$ 75,956	100,688
American Home Products Corp.		30,000	518,343	1,207,500
AMP, Inc.		25,000	325,780	968,750
Avon Products, Inc.		12,000	576,090	570,000
Betz Laboratories, Inc.		2,000	40,310	67,500
Black & Decker Manufacturing Co.		31,200	870,367	1,076,400
Carrier Corp.		20,000	532,267	212,500
Charles River Breeding Lab., Inc.		1,500	49,125	35,250
Chemed Corp.		4,000	94,343	74,000
Chubb Corp.		20,250	830,250	620,156
Citicorp		12,000	455,740	372,000
Coca-Cola Co.		15,000	1,518,750	1,620,000
Deluxe Printers, Inc.		2,500	85,250	66,250
Dillon Companies, Inc.		2,704	59,395	86,866
Dow Chemicals Co.		30,000	1,495,466	1,961,250
Eastman Kodak Co.		16,288	116,480	1,691,916
Economics Laboratory, Inc.		1,000	43,375	32,875
General Motors Corp.		15,578	406,773	757,480
General Reinsurance Corp.		4,000	816,400	612,000
Goodyear Tire & Rubber Co.		50,000	818,309	825,000
Halliburton Co.		8,000	620,379	1,135,000

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DESCRIPTION		No. of shares	Average cost or fair market value at date of gift	Quoted market value
International Business Machines Corp.	Shs.	14,608	$ 391,889	3,107,852
International Flavors & Fragrances, Inc.		20,450	511,811	713,194
International Nickel Co. of Canada Ltd.		30,000	1,113,968	832,500
S. S. Kresge Co.		23,000	766,681	782,000
Lubrizol Corp.		10,000	374,513	387,500
McDonalds Corp.		10,000	472,390	478,750
Merck Co.		12,000	441,823	942,000
Millipore Corp.		2,000	104,412	79,000
Minnesota Mining & Manufacturing Co.		14,000	786,013	1,029,000
Molex, Inc.		2,000	74,625	58,000
J. P. Morgan & Co., Inc.		21,616	646,023	1,118,628
National Chemsearch Corp.		2,000	91,720	87,000
New England Nuclear Corp.		2,000	92,364	58,750
Northrup King & Co.		4,000	90,000	67,000
J. C. Penney Co.		12,000	701,082	870,000
Philip Morris, Inc.		14,000	832,125	763,000
Pickwick International, Inc.		3,120	67,398	37,440
Procter & Gamble Co.		16,000	760,789	1,596,000
Pullman, Inc.		10,000	695,127	507,500
Research Cottrell, Inc.		1,200	73,006	10,650
Schering-Plough Corp.		15,000	251,157	982,500
Jos. Schlitz Brewing Co.		15,000	902,420	678,750
Schlumberger, Ltd.		15,000	514,128	1,475,625
Sears, Roebuck & Co.		19,000	785,038	828,750
Standard Oil of California		20,000	885,015	535,000
Standard Oil of Ohio		10,000	707,500	517,500
Texaco, Inc.		20,000	492,637	502,500
Tennessee Valley Bancorp, Inc.		3,000	89,500	46,500
Walt Disney Productions, Inc.		15,680	307,098	678,160
Weyerhaeuser Co.		48,000	380,071	1,764,000
Xerox Corp.		19,000	43,011	1,151,250
			$ 24,794,482	**36,779,680**

ADMINISTRATIVE AND GENERAL EXPENDITURES

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Year ended June 30, 1974

SCHEDULE 3

Salaries	$ 146,152
Pensions and employee benefits	36,880
Provision for Federal excise tax	80,000
Rent	38,834
Office supplies and sundry expenses	12,998
Printing	21,564
Professional services	17,000
Meetings and conferences	17,237
Telephone and telegraph	4,822
Office equipment	2,457
Book purchases and subscriptions	5,603
Total	$ 383,547

APPROPRIATIONS

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Year ended June 30, 1974

SCHEDULE 4

RECIPIENT AND PURPOSE	Unpaid Jun. 30, 1973	Appropriated during year	Paid during year	Unpaid Jun. 30, 1974
Academy for Educational Development, Inc.				
Support of Aspen Program on Communications and Society (payable to Aspen Institute)	$ 66,000	(66,000)T	—	—
Action for Children's Television				
General support	—	150,000	50,000	100,000
The American University				
Support of a study on newspaper failures	—	106,000	—	106,000
Aspen Institute for Humanistic Studies				
Support of Aspen Program on Communications and Society	196,875	66,000T	96,875	166,000
Partial support for a long-term senior fellow in communications	—	133,000	132,750	250
Cable Arts Foundation, Inc.				
Support of the development of arts programming on cable television	—	65,213	—	65,213
California Center for Research and Education in Government				
Study of the role of the media in the gubernatorial campaign in California	—	20,000	20,000	—
University of California, Los Angeles School of Law				
Establishment of the Communications Law Program	63,285	—	63,285	—
Further support of the Communications Law Program	—	81,000	—	81,000
University of California, San Francisco Department of Psychiatry				
Support of a field study on the effects of television on children	—	112,000	10,000	102,000

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RECIPIENT AND PURPOSE	Unpaid Jun. 30, 1973	Appropriated during year	Paid during year	Unpaid Jun. 30, 1974
University of California, San Francisco U.C. Extension				
Support of a project using commercial television to provide public health education	$ 175,000	—	175,000	—
Final support of the Television Health Information Project	—	**14,000**	14,000	—
University of California, Santa Cruz Office of Instructional Sciences				
Study of the feasibility of providing CATV programming to the Santa Cruz campus and surrounding communities	—	**5,000**	5,000	—
Center for Understanding Media, Inc.				
Support of a study on independent filmmaking	105,000	—	105,000	—
Completion of the study on independent filmmaking	—	**8,500**	8,500	—
Claremont Graduate School Center for Urban and Regional Studies				
Support of a project to increase the effectiveness and use of Spanish-language-only television stations in the Los Angeles area	—	**64,777**	21,593	43,184
The Cleveland State University Department of Communication				
Preparation of a volume of studies, *Watergate and the Mass Media*	—	**4,000**	4,000	—
Columbia University Graduate School of Journalism				
Support of the *Columbia Journalism Review*	80,000	—	40,000	40,000

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RECIPIENT AND PURPOSE	Unpaid Jun.30,1973	Appropriated during year	Paid during year	Unpaid Jun.30,1974
Committee for Economic Development				
Further support of the development of a policy statement on the economic and social impact of the broadcast media	$ —	25,000	25,000	—
Committee on Children's Television, Inc.				
General support	—	15,000	15,000	—
Duke University, Institute of Policy Sciences and Public Affairs				
Establishment of a Center of Communications Policy	300,000	—	100,000	200,000
EDUCOM (Interuniversity Communications Council, Inc.)				
Support of a conference on the potential uses of cable television by universities	—	18,000	18,000	—
Support of research planning on special interest audiences for television	—	5,400	5,400	—
Educational Broadcasting Corporation				
Study of the viewing habits, awareness of and attitudes toward public television in the Spanish-speaking community of New York	—	15,000	15,000	—
Festival International du Film				
For the shipping costs of taking and returning a selection of the best American independent films to the Cannes Film Festival	—	2,000	2,000	—
The Foundation Center				
General support	—	2,000	2,000	—
The Fund for Investigative Journalism, Inc.				
General support	37,500	—	37,500	—
Further support	—	60,000	—	60,000

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RECIPIENT AND PURPOSE	Unpaid Jun.30,1973	Appropriated during year	Paid during year	Unpaid Jun.30,1974
Harvard University				
Support of the Program on Information Technologies and Public Policy	$ 30,110	---	30,110	---
Further support of the Program on Information Technologies and Public Policy	---	76,000	38,000	38,000
Lincoln Center for the Performing Arts, Inc.				
Support of a study to determine the feasibility of establishing pay television to transmit live performances from Lincoln Center	---	76,700	---	76,700
Massachusetts Institute of Technology Center for International Studies				
Support of the Communications Policy Research Program	50,000	---	50,000	---
Further support of the Communications Policy Research Program	---	75,000	---	75,000
Massachusetts Institute of Technology Department of Political Science				
Support of an inventory of survey questions concerning the television interests of the American public	---	4,985	4,985	---
University of Massachusetts Journalistic Studies Program				
Support of an expanded version of the survey of New England daily newspapers	31,000	---	31,000	---
Support of an evaluative conference on the New England daily newspaper survey	---	4,500	4,500	---
Media Access Project				
General support	---	50,000	---	50,000

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RECIPIENT AND PURPOSE	Unpaid Jun. 30, 1973	Appropriated during year	Paid during year	Unpaid Jun. 30, 1974
Mellett Fund For A Free And Responsible Press				
Support of the production of a booklet on practical guidelines for training minorities for professional status in the news media	$ —	16,342	16,342	—
University of Michigan Institute for Social Research				
Support of a research program on the social context of the mass media	82,500	—	82,500	—
The National News Council		125,000		
General support	—	50,000T	50,000	125,000
New York University School of the Arts				
Support of the Alternate Media Center	281,250	—	168,750	112,500
Race Relations Information Center				
Support of three seminars on race relations reporting	—	50,000	50,000	—
The Rand Corporation				
Support of a Communications Policy Program	350,000	—	200,000	150,000
Support of research on identifying and measuring the size of special interest audiences for public television	—	35,000	—	35,000
Support of the publication and distribution of a study on new evaluation methods for "Sesame Street" and "The Electric Company"	—	2,500	2,500	—
The Riverside Press Council				
Support of a press council in Riverside, California, affiliated with the *Riverside Press Enterprise*	—	6,600	6,600	—

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RECIPIENT AND PURPOSE	Unpaid Jun. 30, 1973	Appropriated during year	Paid during year	Unpaid Jun. 30, 1974
The Senate, State of New York				
Support of a conference on the appropriate role of state government in cable television regulation	$ —	20,000	20,000	—
Social Science Research Council				
Support of a series of conferences on the feasibility of a study on politics and the mass media	—	21,000	21,000	—
Support of a study of the relationship between politics and the media in the 1974 election	—	159,000	—	159,000
University of Southern California Annenberg School of Communications				
Support of research on the impact of drug information in the mass media	—	36,100	36,100	—
Support of a study on the uses of cable television by municipal governments	—	28,000	28,000	—
Southern Regional Council, Inc.				
Support of the Southern Project for Investigative Journalism	89,000	—	30,000	59,000
Stanford University Department of Communication				
Support of research on government/media relationships	—	58,000	19,750	38,250
Twentieth Century Fund				
Support of The National News Council (see The National News Council)	100,000	(50,000)T	50,000	—
United Church of Christ Office of Communications				
Support of updating and reprinting publications for citizens' groups on regulations of the FCC	—	26,000	26,000	—

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RECIPIENT AND PURPOSE	Unpaid Jun. 30, 1973	Appropriated during year	Paid during year	Unpaid Jun. 30, 1974
The Urban Institute				
Support of the Cable Television Information Center	$ 125,000	—	125,000	—
Further support of the Cable Television Information Center	—	250,000	125,000	125,000
University of Wisconsin Mass Communications Research Center				
Support of a study of the influence of mass communications on young voters	—	29,380	29,380	—
Total	$ 2,162,520	2,055,997	2,211,420	2,007,097
		(1,000)*		
Old-age assistance and relief to individuals	7,600	7,600	6,600	7,600
Total Appropriations	$ 2,170,120	2,062,597	2,218,020	2,014,697
Refunded appropriations:				
University of Chicago	—	(13,771)	(13,771)	—
University of Michigan	—	(19,031)	(19,031)	—
	—	(32,802)	(32,802)	—
Net Total	$ 2,170,120	2,029,795	2,185,218	2,014,697

Notes: * - Cancelled T - Transferred in (out).

86 PROJECTS ADMINISTERED BY THE OFFICERS OF THE FOUNDATION

Year ended June 30, 1974

SCHEDULE 5

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Research and preliminary work on an information and orientation film for hospital patients	$ 4,000
Production and testing of film for hospital patients	45,600
Evaluation of the performance of the Cable Television Information Center	8,247
For support of an exploratory investigation of television and the electoral process	803
	$ 58,650

ADDRESSES OF GRANTEES

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Academy for Educational Development, Inc.*
437 Madison Avenue
New York, New York 10022

Action for Children's Television
46 Austin Street
Newtonville, Massachusetts 02160

The American University
Department of Journalism
Washington, D.C. 20016

Aspen Institute for Humanistic Studies
Program on Communications and Society
770 Welch Road
Palo Alto, California 94304

Cable Arts Foundation, Inc.
101 West 57th Street
New York, New York 10019

California Center for Research and Education in Government
1617 Tenth Street
Sacramento, California 95814

University of California, Los Angeles
Communications Law Program
School of Law
Los Angeles, California 90024

University of California, San Francisco
Laboratory for the Study of Human Interaction and Conflict
Department of Psychiatry
701 Parnassus Avenue
San Francisco, California 94143

University of California, San Francisco
TV Health Information Project
U.C. Extension, 104 Woods Hall
55 Laguna Street
San Francisco, California 94122

University of California, Santa Cruz
Office of Instructional Services
Santa Cruz, California 95060

Center for Understanding Media, Inc.
75 Horatio Street
New York, New York 10014

Claremont Graduate School
Center for Urban and Regional Studies
900 North College Avenue
Claremont, California 91711

The Cleveland State University
Department of Communication
College of Arts and Sciences
Cleveland, Ohio 44115

Columbia University
Graduate School of Journalism
Journalism Building
New York, New York 10027

Columbia University*
School of Law
435 West 116th Street
New York, New York 10027

Committee for Economic Development
477 Madison Avenue
New York, New York 10022

Committee on Children's Television, Inc.
1511 Masonic Avenue
San Francisco, California 94117

Duke University
Institute of Policy Sciences and Public Affairs
4875 Duke Station
Durham, North Carolina 27706

EDUCOM
Interuniversity Communications Council, Inc.
P.O. Box 364, Rosedale Road
Princeton, New Jersey 08540

Educational Broadcasting Corporation
304 West 58th Street
New York, New York 10019

Festival International Du Film
Association Française
71, rue du Faubourg-Saint-Honoré
Paris 8, France

The Foundation Center
888 Seventh Avenue
New York, New York 10019

The Fund for Investigative Journalism, Inc.
1346 Connecticut Avenue, N.W.
Washington, D.C. 20036

Harvard University*
Graduate School of Education
Laboratory of Human Development
Roy E. Larsen Hall, Appian Way
Cambridge, Massachusetts 02138

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Addresses of Grantees-continued

Harvard University
Program on Information Technologies
and Public Policy
200 Aiken Computation Laboratory
Cambridge, Massachusetts 02138

University of Illinois at Chicago Circle*
Department of Sociology
College of Liberal Arts and Sciences
Box 4348
Chicago, Illinois 60680

Lincoln Center for the Performing Arts, Inc.
1865 Broadway
New York, New York 10023

Massachusetts Institute of Technology
Center for International Studies
30 Wadsworth Street
Cambridge, Massachusetts 02139

Massachusetts Institute of Technology
Department of Political Science
Cambridge, Massachusetts 02139

University of Massachusetts
Journalistic Studies Program
Amherst, Massachusetts 01002

Media Access Project
1910 N Street, N.W.
Washington, D.C. 20036

Mellett Fund For A Free And Responsible Press
1125 15th Street, N.W., Suite 835
Washington, D.C. 20005

University of Michigan
Institute for Social Research
Ann Arbor, Michigan 48106

The National News Council
One Lincoln Plaza
New York, New York 10023

New York University
School of the Arts
Alternate Media Center
144 Bleecker Street
New York, New York 10012

University of Pennsylvania*
Annenberg School of Communications
Philadelphia, Pennsylvania 19174

Race Relations Information Center
P.O. Box 12156
Nashville, Tennessee 37212

The Rand Corporation
1700 Main Street
Santa Monica, California 90406

Regional Plan Association*
235 East 45th Street
New York, New York 10017

The Riverside Press Council
P.O. Box 1326
Riverside, California 92502

The Senate
State of New York
Albany, New York 12224

Social Science Research Council
605 Third Avenue
New York, New York 10016

University of Southern California
Annenberg School of Communications
University Park
Los Angeles, California 90007

Southern Regional Council, Inc.
52 Fairlie Street, N.W.
Atlanta, Georgia 30303

Stanford University
Department of Communication
Stanford, California 94305

Twentieth Century Fund
41 East 70th Street
New York, New York 10021

United Church of Christ
Office of Communications
289 Park Avenue South
New York, New York 10010

The Urban Institute
Cable Television Information Center
2100 M Street, N.W.
Washington, D.C. 20037

University of Wisconsin
Mass Communications Research Center
5018 Vilas Communication Hall
Madison, Wisconsin 53706

*Former grantee. See Publications Resulting From Grants.

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